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OPERATIONS & SERVICE MANUAL
Manual #40-38
Revised 6/1/04

ITW Dynatec

Adhesive Application Solutions • ISO 9001 Certified

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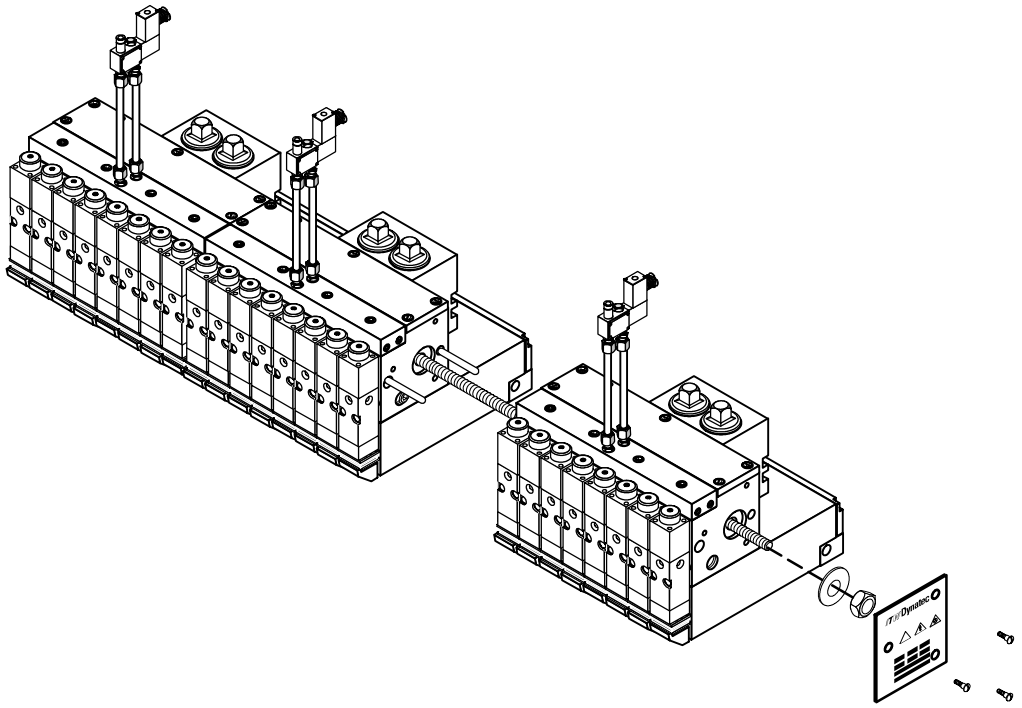
Service Manual Links

EQUITY LINE UFD & SPIRAL SPRAY APPLICATORS SERVICE MANUAL



Patent Pending: QC Module

IMPORTANT ! - READ ALL INSTRUCTIONS BEFORE OPERATING THIS EQUIPMENT

It is the customer's responsibility to have all operators and service personnel read and understand this information. Contact your ITW Dynatec customer service representative for additional copies.

NOTICE! Please be sure to include the serial number of your application system each time you order replacement parts and/or supplies. This will enable us to send you the correct items that you need.

ITW Dynatec Service Parts Direct Dial: 1-800-538-9540
ITW Dynatec Technical Service Direct Dial: 1-800-654-6711

⚠ SAFETY INSTRUCTIONS

GENERAL CONSIDERATIONS

1. Read and follow these instructions. Failure to do this could result in severe personal injury or death.

2. Additional safety instructions and/ or symbols are located throughout this manual. They serve to warn maintenance personnel and operators about potentially hazardous situations.

3. Inspect the machine for unsafe conditions daily and replace all worn or defective parts.

4. Keep work area uncluttered and well lit.

5. All covers and guards must be in place before operating this equipment.

For precautions and definitions of safety symbols, refer to the Safety Chapter of the service manual.

SERVICING EQUIPMENT

1. Only trained personnel are to operate and service this equipment.

2. Never service or clean equipment while it is in motion.

   Shut off the equipment and lock out all input power at the source before attempting any maintenance.

3. Follow the maintenance and service instructions in the manual.

SIGNS

1. Read and obey all of the warning labels, signs and caution statements on the equipment.

2. Do not remove or deface any of the warning labels, signs and caution statements on the equipment.

3. Replace any warning labels, signs and caution statements which have been removed or defaced. Replacements are available from ITW Dynatec.

ADDITIONAL CONSIDERATIONS

1. To ensure proper operation of the equipment, use specified electrical and/ or air supply sources.

2. Do not attempt to alter the design of the equipment unless written approval is received from ITW Dynatec.

3. Keep all manuals readily accessible at all times and refer to it often for the best performance from your equipment.

TABLE OF CONTENTS

Chapter 7 Ordering Guides

Chapter 8 Engineering Drawings & Schematics

Appendix A Solenoid Valve Configurations, Schematics & Setup

Chapter 1
SAFETY PRECAUTIONS

All operators and service personnel must read and understand this manual before operating or servicing equipment.

All maintenance and service on this equipment must be performed by trained technicians.

Electrical

Dangerous voltages exist at several points in this equipment. To avoid personal injury, do not touch exposed connections and components while input power is on. Disconnect, lockout and tag external electrical power before removing protective panels.

A secure connection to a reliable earth ground is essential for safe operation.

A disconnect switch with lockout capability must be provided in the line ahead of the unit. Wiring used to supply electrical power should be installed by a qualified electrician.

High Temperatures

Severe burns can occur if unprotected skin comes in contact with molten adhesive or hot application system parts.

Safety glasses, gloves and long- sleeved clothing must be worn whenever working with or around adhesive application systems.

High Pressure

To avoid personal injury, do not operate the equipment without all covers, panels and safety guards properly installed.

To prevent serious injury from molten adhesive under pressure when servicing the equipment, disengage the pumps and relieve the adhesive system's hydraulic pressure (e.g., trigger the heads, hand-held applicators, and/or other application devices into a waste container) before opening any hydraulic fittings or connections.

Protective Covers

Keep all guards in place!

To avoid personal injury, do not operate the application system without all covers, panels and safety guards properly installed.

Eye Protection & Protective Clothing

It is very important that you PROTECT YOUR EYES when working around hot melt adhesive equipment!

Wear safety glasses with side shields which conform to ANSI Z87.1 or EN166.

Failure to wear safety glasses could result in severe eye injury.

It is important to protect yourself from potential burns when working around hot melt adhesive equipment.

Wear protective gloves and long-sleeved, protective clothing to prevent burns that could result from contact with hot material or hot components.

Always wear steel-reinforced safety shoes.

Safe Installation and Operation

To avoid possible failure of hoses, make sure all hoses are routed to avoid kinking, tight radius turns (8” or less) and abrasive contact. Hot-melt hoses should not have prolonged contact with heat-absorbing surfaces such as cold floors or metal troughs. These heat-absorbing surfaces can alter adhesive flow and cause incorrect calibration. Hoses should never be covered with materials that prevent heat dissipation, such as insulation or sheathing.

Read this manual before applying electrical power to the equipment. Equipment may be damaged by incorrect electrical connections.

Do not use adhesive that is dirty or that may be chemically contaminated. Doing so can cause system clogging and pump damage.

When adhesive hand-held applicators or other movable applicators are used, never point them at yourself or at any other person. Never leave a hand-held applicator’s trigger unlocked when not actually in use.

Do not operate the hopper or other system components without adhesive for more than 15 minutes if the temperature is 150 degrees C (300 degrees F) or more. To do so will cause charring of the residual adhesive.

Never activate the heads, hand-held applicators and/ or other application devices until the adhesive’s temperature is within the operating range. Severe damage could result to internal parts and seals.

Treatment for Burns From Hot Melt Adhesives

Burns caused by hot melt adhesive must be treated at a burn center.

Care should be used when working with hot melt adhesives in the molten state. Because they rapidly solidify, they present a unique hazard.

Even when first solidified, they are still hot and can cause severe burns. When working near a hot melt application system, always wear safety gloves, safety glasses and long-sleeved, protective clothing.

Always have first-aid information and supplies available.

Call a physician and/or an emergency medical technician immediately.

Service

Refer all servicing to qualified personnel only.

Explosion/ Fire Hazard

Never operate this unit in an explosive environment.

Use cleaning compounds recommended by ITW Dynatec or your adhesive supplier only. Flash points of cleaning compounds vary according to their composition, so consult with your supplier to determine the maximum heating temperatures and safety precautions.

Lockout/ Tagout

Follow OSHA 1910.147 (Lockout/ Tagout Regulation) for equipment's lockout procedures and other important lockout/ tagout guidelines.

Be familiar with all lockout sources on the equipment.

Even after the equipment has been locked out, there may be stored energy in the application system, particularly in the capacitors within the panel box. To ensure that all stored energy is relieved, wait at least one minute before servicing electrical capacitors.

In This Manual

WARNINGS and CAUTIONS are found throughout this manual.

WARNINGS mean that failure to observe the specific instructions may cause injury to personnel.

CAUTIONS mean that failure to observe the specific instrucitons may damage the equipment.

Chapter 2
DESCRIPTION AND SPECIFICATIONS

Description

ITW Dynatec's Equity Line MR1300 UFD & Spiral Spray Applicator Heads are air-operated, multi-module hot melt adhesive applicator assemblies with integrated basket filters designed to prevent particulate matter from obstructing adhesive flow. The stackable UFD applicators are modular and may be combined to produce segmented applicators of up to 50 ports. Design is all metric.

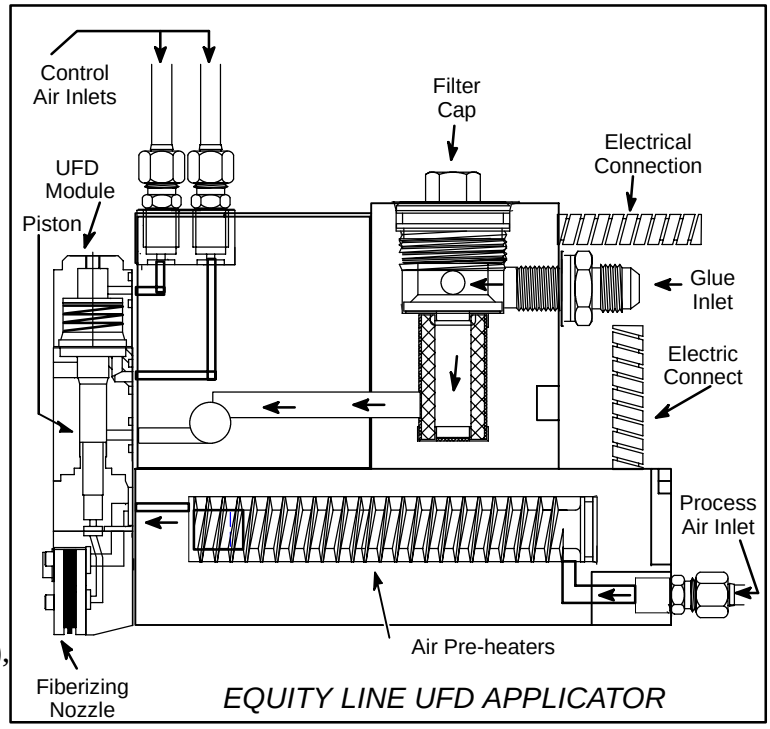
The applicators are heated by replaceable cartridge heating elements which are controlled by an integrated sensor and electronic control. Each model can be configured for ITW Dynatec's DynaControl, MCV or Upgrade control schemes or for PLC controls.

Five standard Equity UFD models, ranging in length from 150 mm (containing up to 6 m odules) to 350 mm (up to 14 modules) are offered. Longer, customized applicators are created by joining two or more of the standard applicators into one larger, segmented applicator. The modules of each segment of the applicator are activated by at least one solenoid. Each segment is fed by an individual adhesive hose.

UFD modules for use on these applicators are available for continuous vertical (CV) or continuous horizontal (CH) applications. Snuffback modules are used for intermittent vertical (IV) or intermittent horizontal (IH) applications. Spiral spray modules are utilized for precise applications requiring superior edge definition.

Theory of Operation

Each applicator features one or more MR1300 adhesive valve modules mounted to a single service block. Each module is opened and closed by air pressure. Springs are used to keep the stem closed when no air pressure is supplied to the head. The rate of adhesive flow from the applicator is determined by the adhesive metered by the adhesive application system's (ASU's) pump, the nozzle type and the stem stroke adjustment.



EQUITY LINE UFD APPLICATOR

As shown in the illustration at right, the heated adhesive supply hose is connected at the rear of the applicator. Adhesive flows from the hose into the filter block, through the service block and then to the module. Air pressure (Control Air), activated by a solenoid(s), opens the adhesive valve, allowing adhesive to

cont.

flow through the module's nozzle.

On the Equity UFD heads, a spiral rod air pre-heater is located below the service block. The pre-heater supplies heated air (Process Air), used to fiberize the adhesive streams, to the modules. The air preheater is thermally isolated from the service block and its temperature is controlled independently.

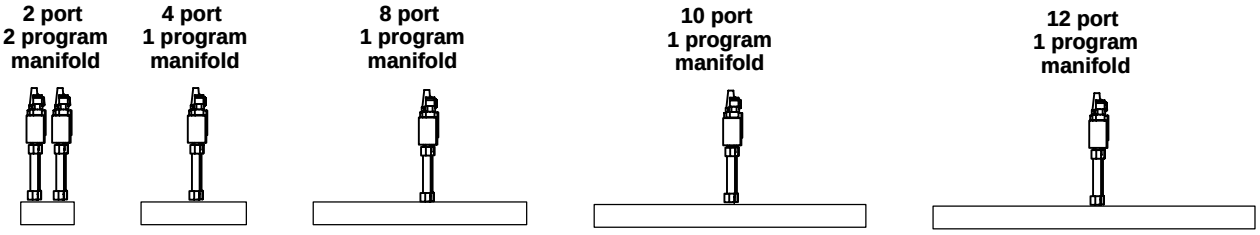
Solenoid Air Programs

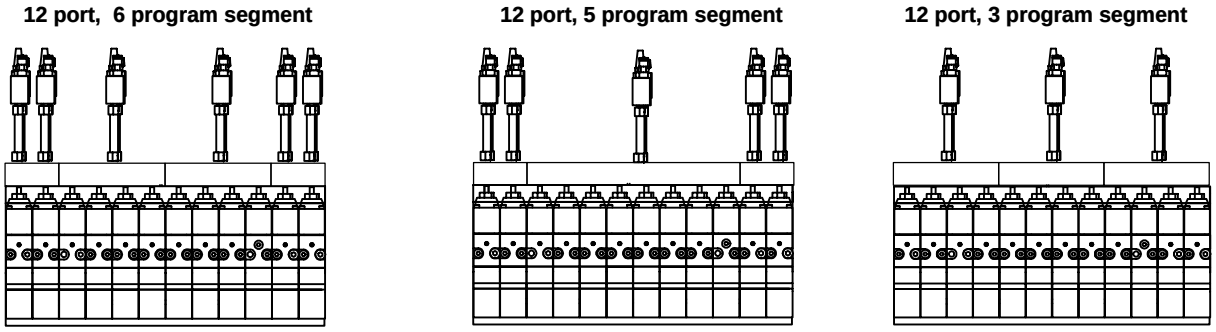
On the Equity UFD applicators, solenoids mounted on a solenoid manifold supply the air pressure which activates each adhesive module.

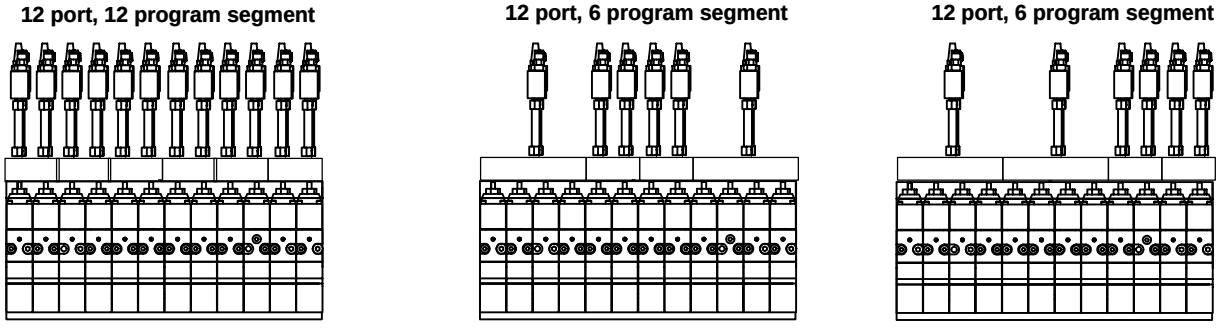
Each segment of a stackable UFD applicator must include at least one solenoid, but it may include as many as one solenoid per module. The advantage of more solenoids is that they give the operator the flexibility to produce more adhesive patterns.

A solenoid air program describes the number of modules activated by each individual solenoid on a segmented applicator.

One program air manifolds are available in 2 port, 4 port, 3 port, 6 port, 7 port, 8 port, 9 port, 10 port, 12 port and 14 port configurations. Multiple-program air manifolds can be achieved by combining these with the 2 port/ 1 or 2 program air manifolds, as shown in the diagrams below.







Specifications

Environmental:

Storage/ shipping temperature . . . . . -40°C to 70°C (-40°F to 158°F)
Ambient service temperature . . . . . -7°C to 50°C (20°F to 122°F)

Physical:

Dimensions . . . . . see dimensional layouts on following pages
Weight (including modules and 1 solenoid valve) . . . . . 6 port: tbd kg (lb.)
8 port: 13.5 kg (30 lb.)
9 port: 15.1 kg (33 lb.)
10 port: 16.8 kg (37 lb.)
12 port: 19.8 kg (43.5 lb.)
14 port: 22.72 kg (50 lb.)
Mounting . . . . . M8 x 1 screws with insulators or customer-configured mount

Performance:

Temperature range . . . . . 38°C to 218°C (100°F to 425°F)
Warm-up time . . . . . 30 minutes for cold start/ 5 minutes for module change only
Adhesive viscosity . . . . . 100 to 30000 mPa. sec. (100 to 30000 centipoise)
Adhesive pressure range . . . . . 68 bar maximum (1000 psi maximum)
Noise emission . . . . . 70 dB(A)

Air Requirements:

Air pressure range . . . . . 4.1 to 6.9 bar (60 to 100 psi)

Electrical:

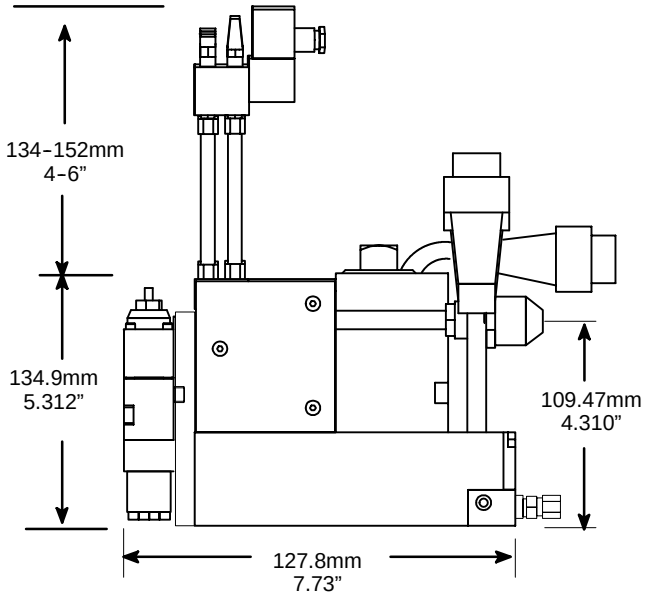
Supply voltage . . . . . 200-240 VAC/ 1p/ 50-60 Hz

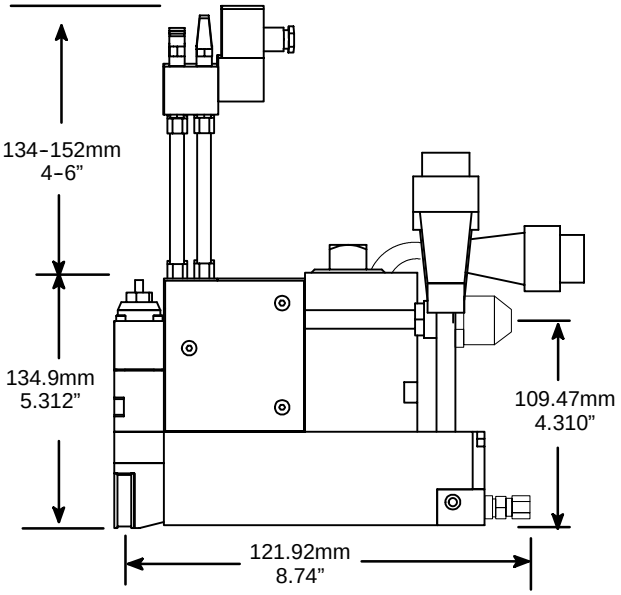
Power requirements:

Note: MR1300 Spiral Spray Applicators utilize the same power as listed below, without the air pre-heater.

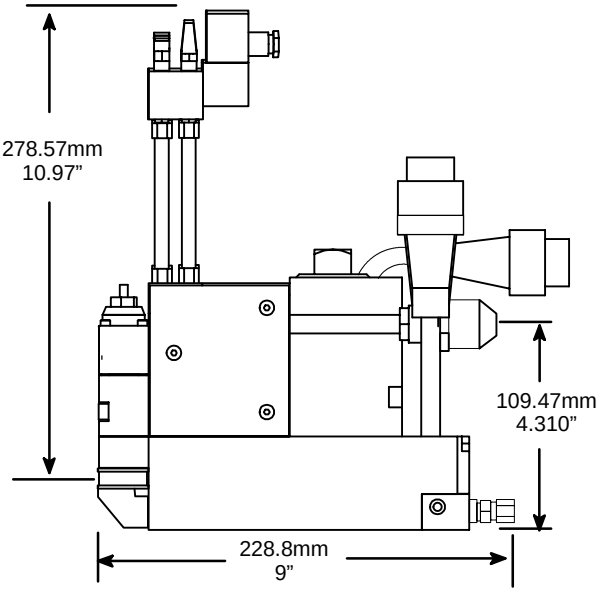
Model	Spacing Between Nozzle Centers	Wattage	
		Adhesive Manifold	Air Preheater
6 port	25.2 mm	800	1320
8 port	25.2 mm	800	1760
9 port	25.2 mm	800	1980
10 port	25.2 mm	1200	2200
12 port	25.2 mm	1200	2400
14 port	25.2 mm	1600	3080

Side Views of MR1300 Spray Applicator & Equity UFD (Vertical Nozzle) Applicators:

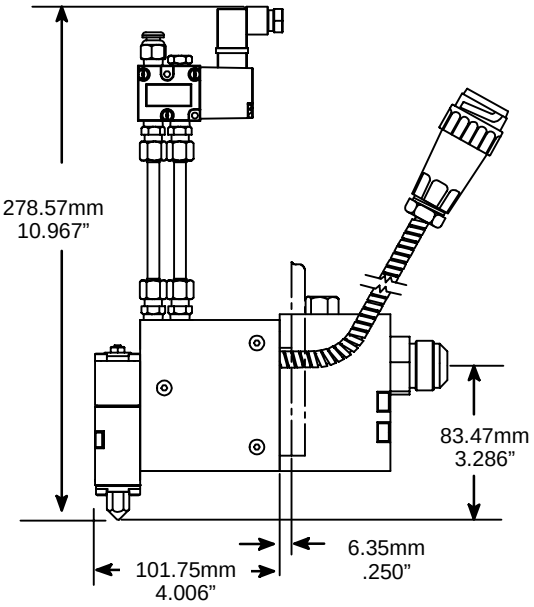




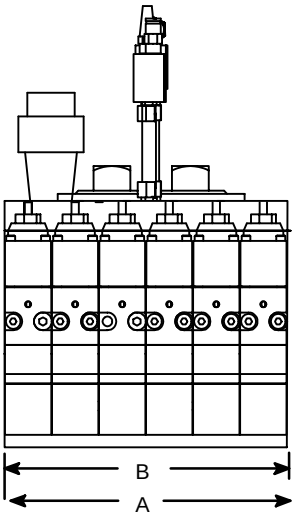
Side View of Equity UFD (Horizontal Nozzle) Applicator:



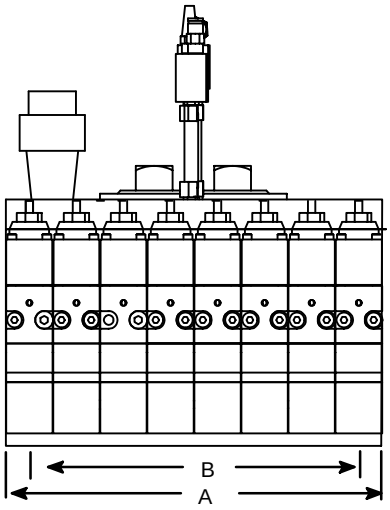
Side View of Equity Bead Applicator:



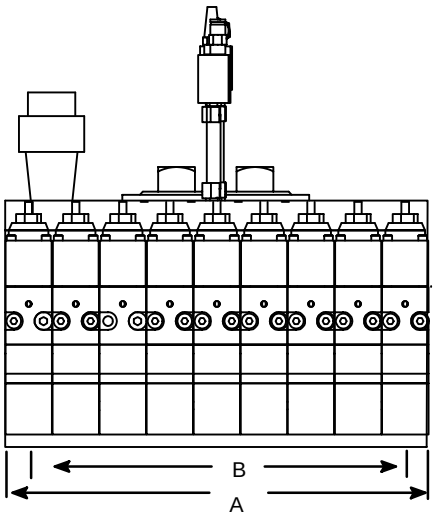
Dimensions



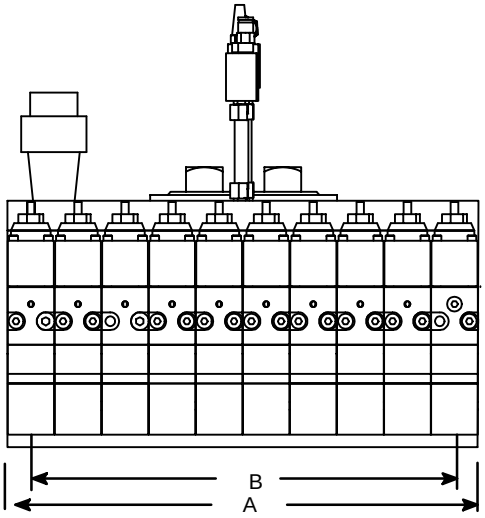
6 port Equity UFD Segment



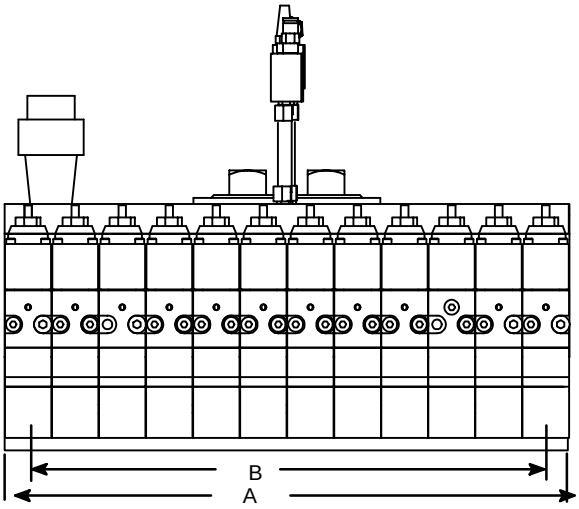
8 port Equity UFD Segment



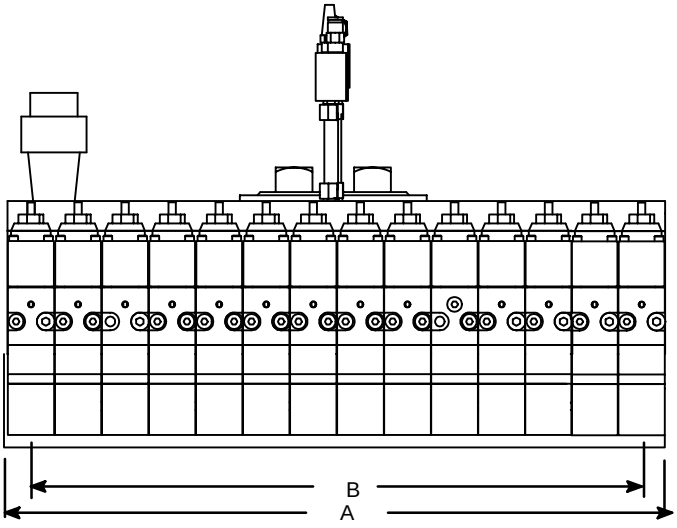
9 port Equity UFD Segment



10 port Equity UFD Segment



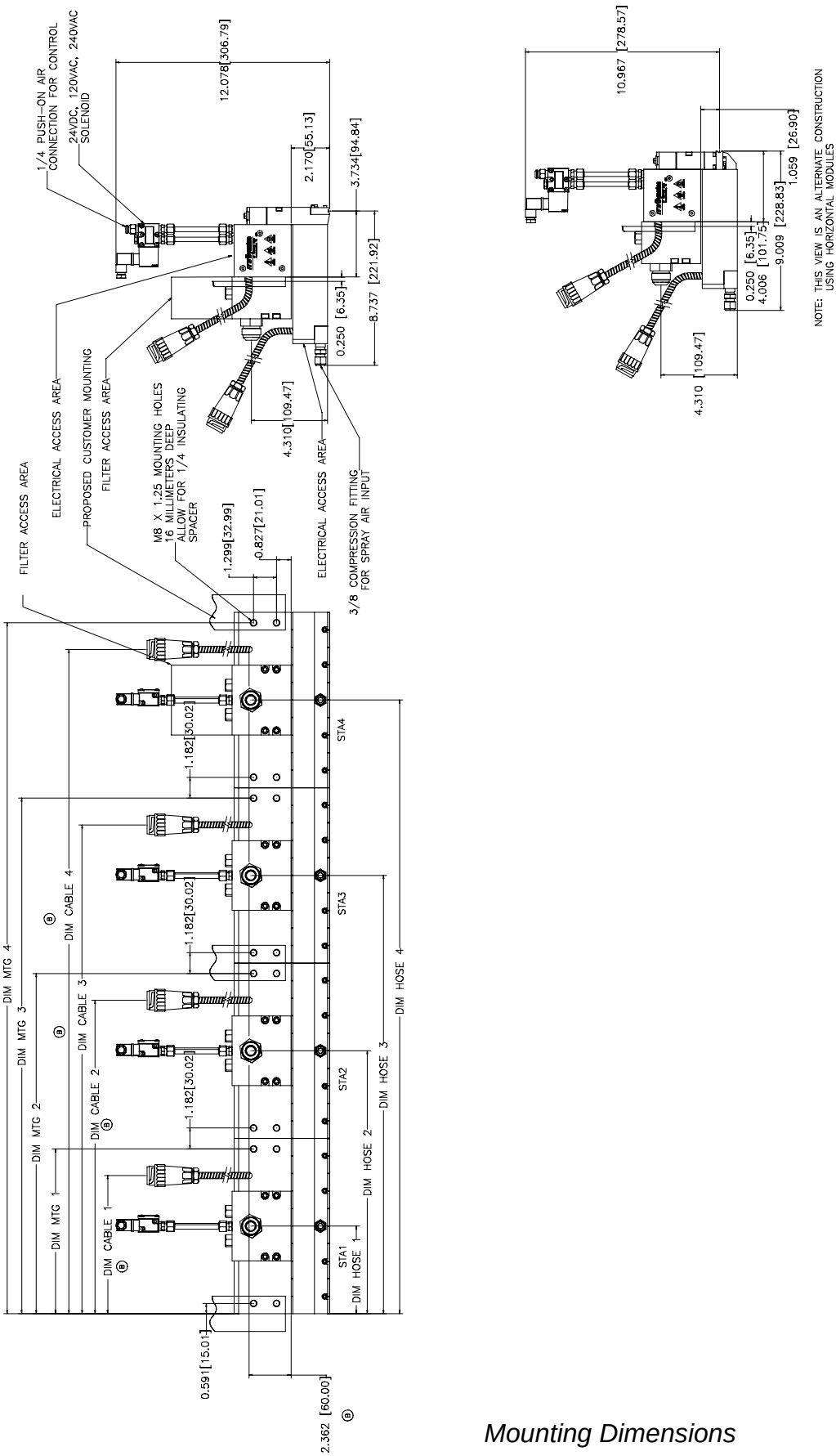
12 port Equity UFD Segment



14 port Equity UFD Segment

Equity UFD Applicators		
Model No.	**WIDTH A**	**CENTERS B**
6 port	151mm 5.95”	.31mm .992”
8 port	200mm 8”	176.4mm 7”
9 port	225mm 9”	201.6mm 8”
10 port	250mm 10”	226.8mm 9”
12 port	300mm 12”	277.2mm 11”
14 port	350mm 14”	327.6mm 13”

Dimensions



Mounting Dimensions

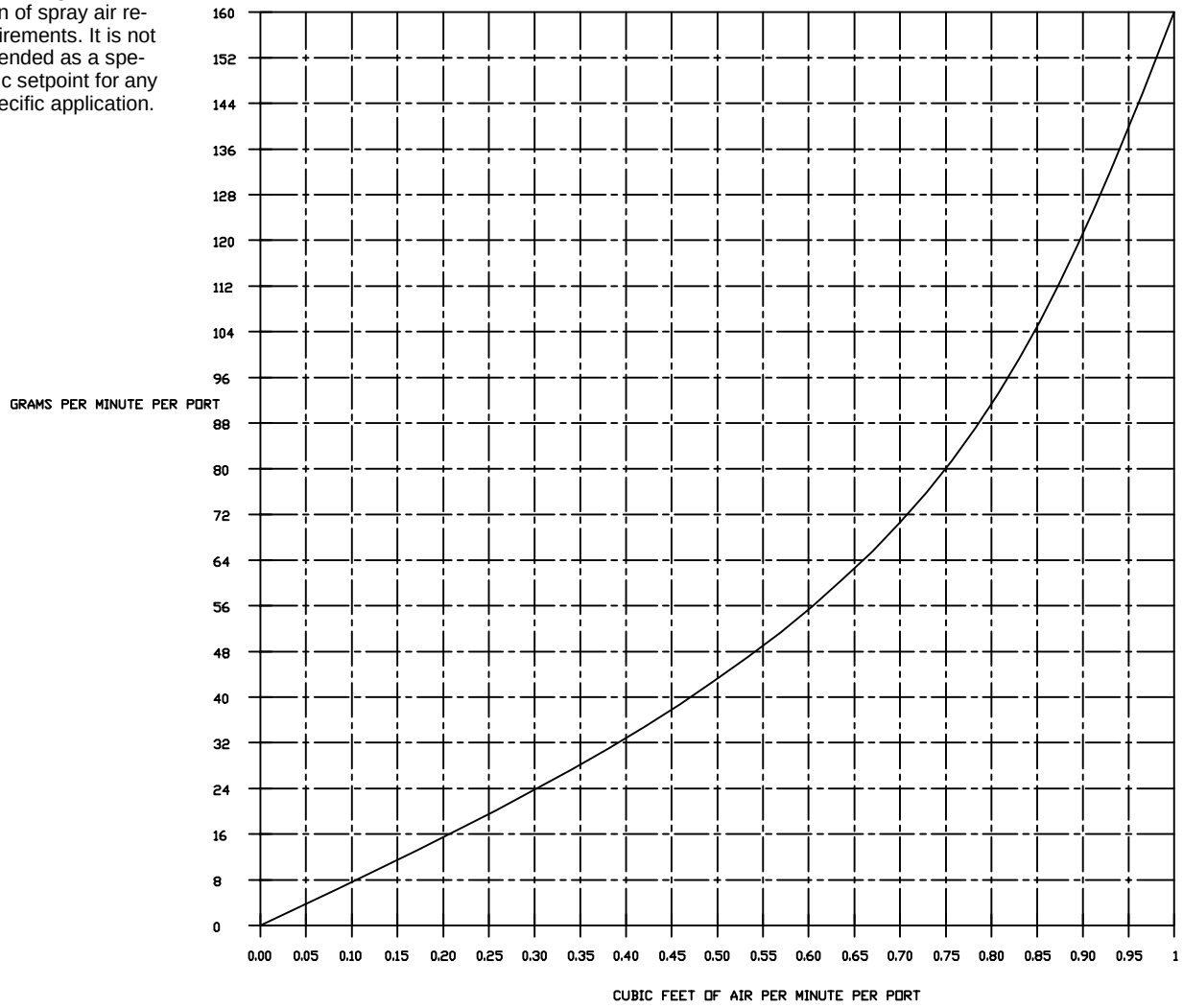
STANDARD DYNAFIBER UFD APPLICATORS

NOMINAL PATTERN WIDTH	PORTS	HOSE INLETS	DIM HOSE 1	DIM HOSE 2	DIM HOSE 3	DIM HOSE 4	DIM MTG 1	DIM MTG 2	DIM MTG 3	DIM MTG 4	DIM CABLE 1	DIM CABLE 2	DIM CABLE 3	DIM CABLE 4	STA1 STA2 STA3 STA4 ASSEMBLY ORDER
1200	48	4	150.0	450.0	750.0	1050.0	287.4*	589.8*	892.2*	1194.6*	216.0	518.4	820.8	1123.2	12 12 12 12
1160	46	4	125.0	400.0	700.0	1000.0	237.0*	539.4*	841.8*	1144.2*	190.8	468.0	770.4	1072.8	10 12 12 12
1130	45	4	112.5	375.0	675.0	975.0	211.8*	514.2*	816.6*	1119.0*	178.2	442.8	745.2	1047.6	9 12 12 12
1110	44	4	100.0	350.0	650.0	950.0	186.6*	489.0*	791.4*	1093.8*	165.6	417.6	720.0	1022.4	8 12 12 12
1080	43	4	112.5	350.0	625.0	925.0	211.8*	463.8*	766.2*	1068.6*	178.2	417.6	694.8	997.2	9 10 12 12
1060	42	4	125.0	375.0	625.0	900.0	237.0*	489.0*	741.0*	1043.4*	190.8	442.8	694.8	972.0	10 10 10 12
1030	41	4	112.5	350.0	600.0	875.0	211.8*	463.8*	715.8*	1018.2*	178.2	417.6	669.6	946.8	9 10 10 12
1000	40	4	125.0	375.0	625.0	875.0	237.0*	489.0*	741.0*	993.0*	190.8	442.8	694.8	946.8	10 10 10 10
955	38	4	100.0	325.0	575.0	825.0	186.6*	438.6*	690.6*	942.6*	165.6	392.4	644.4	896.4	8 10 10 10
930	37	4	112.5	337.5	562.5	800.0	211.8*	438.6*	665.4*	917.4*	178.2	405.0	631.8	871.2	9 9 9 10
900	36	4	112.5	337.5	562.5	787.5	211.8*	438.6*	665.4*	892.2*	178.2	405.0	631.8	858.6	9 9 9 9
900	36	3	150.0	450.0	750.0	——	287.4*	589.8*	892.2*	——	216.0	518.4	820.8	——	12 12 12 —
880	35	4	100.0	312.5	537.5	762.5	186.6*	413.4*	640.2*	867.0*	165.6	379.8	606.6	833.4	8 9 9 9
855	34	3	150.0	425.0	700.0	——	287.4*	539.4*	841.8*	——	216.0	493.2	770.4	——	12 10 12 —
830	33	3	150.0	412.5	675.0	——	287.4*	514.2*	816.6*	——	216.0	480.6	745.2	——	12 9 12 —
800	32	4	100.0	300.0	500.0	700.0	186.6*	388.2*	589.8*	791.4*	165.6	367.2	568.8	770.4	8 8 8 8
800	32	3	125.0	400.0	675.0	——	237.0*	539.4*	791.4*	——	190.8	468.0	745.2	——	10 12 10 —
750	30	3	125.0	375.0	625.0	——	237.0*	489.0*	741.0*	——	190.8	442.8	694.8	——	10 10 10 —
730	29	3	125.0	362.5	600.0	——	237.0*	463.8*	715.8*	——	190.8	430.2	669.6	——	10 9 10 —
705	28	3	100.0	325.0	450.0	——	186.6*	438.6*	690.6*	——	165.6	392.4	644.4	——	8 10 10 —
675	27	3	112.5	337.5	562.5	——	211.8*	438.6*	665.4*	——	178.2	405.0	631.8	——	9 9 9 —
655	26	3	112.5	325.0	537.5	——	211.8*	413.4*	640.2*	——	178.2	392.4	606.6	——	9 8 9 —
600	24	3	100.0	300.0	500.0	——	186.6*	388.2*	589.8*	——	165.6	367.2	568.8	——	8 8 8 —
600	24	2	150.0	450.0	——	——	287.4*	589.8*	——	——	216.0	518.4	——	——	12 12 — —
550	22	2	125.0	400.0	——	——	237.0*	539.4*	——	——	190.8	468.0	——	——	10 12 — —
530	21	2	112.5	375.0	——	——	211.8*	514.2*	——	——	178.2	442.8	——	——	9 12 — —
500	20	2	125.0	375.0	——	——	237.0*	489.0*	——	——	190.8	442.8	——	——	10 10 — —
480	19	2	125.0	362.5	——	——	237.0*	463.8*	——	——	190.8	430.2	——	——	10 9 — —
450	18	2	112.5	337.5	——	——	211.8*	438.6*	——	——	178.2	405.0	——	——	9 9 — —
400	16	2	100.0	300.0	——	——	186.6*	388.2*	——	——	165.6	367.2	——	——	8 8 — —
300	12	1	150.0	——	——	——	287.4*	——	——	——	216.0	——	——	——	— — — —
250	10	1	125.0	——	——	——	237.0*	——	——	——	190.8	——	——	——	— — — —
225	9	1	112.5	——	——	——	211.8*	——	——	——	178.2	——	——	——	— — — —
200	8	1	100.0	——	——	——	186.6*	——	——	——	165.6	——	——	——	— — — —

Note: Mounting dimensions marked with an asterisk ***** are optional.

Air Consumption

Note: This chart is for rough estimation of spray air requirements. It is not intended as a specific setpoint for any specific application.



Identification Plates

Each segment of your Equity stackable applicator has an ITW Dynatec identification plate, located on the top of the junction cover. These identification plates list the volts, watts and amps for the segment's heat zone and air preheater. They are also stamped with the segment's model and serial numbers.

When two or more segments are joined into a longer applicator, the joining kit's end plate also serves as an identification plate. This plate lists info on the segment configuration* of the entire applicator (including volts, watts, amps, model and serial numbers), as it was originally built and shipped to you by ITW Dynatec.

If the configuration of your applicator changes, ie. if you add or subtract or re-arrange the segments, contact ITW Dynatec in order to obtain an updated applicator identification plate.

** The segment configuration of the entire applicator is noted from left to right as you face the modules.*

Chapter 3
INSTALLATION & START UP

Note: Re-read Chapter 1 "Safety Precautions" before performing any installation or start-up procedures. All installation and start-up procedures must be performed by qualified, trained technicians.

Handling and Shipping

Equity Line UFD and spray applicator head assemblies are packaged within protective cushioning material in a fiber packing carton. This package may be shipped inside another carton along with other individual boxes containing components of the system.

Service Requirements

The service block's incoming electrical power and temperature control is supplied through the flexible cable exiting the adhesive supply hose cuff or through an extension cable from the ASU. The applicator has a circular, plastic connector which mates with the connector attached to this cable.

Incoming power and temperature control for the air preheater, if applicable, is supplied by a cable extension from the ASU.

Incoming module-activation air is supplied through a solenoid valve. It must be clean and unlubricated. *For conventional modules*, the module-activation air is controlled by a four-way solenoid valve and should be separately regulated and maintained at a pressure between 4.1 to 6.9 bar (60 to 100 psi). Air lines from the solenoid valve should be 6.4mm (1/4 inch). Head air inlet ports are G 1/8 threads (1/8 NPT).

For snuffback modules, the module-activation air is controlled by a five-way solenoid valve. See Appendix A and B for details on the solenoid setup.

Incoming process (preheater) air must be supplied through a pressure regulator. The air must be clean and unlubricated. Operating pressure depends on the choice of nozzle. For the applicator's air supply line, 3/8" O.D. airline is recommended.

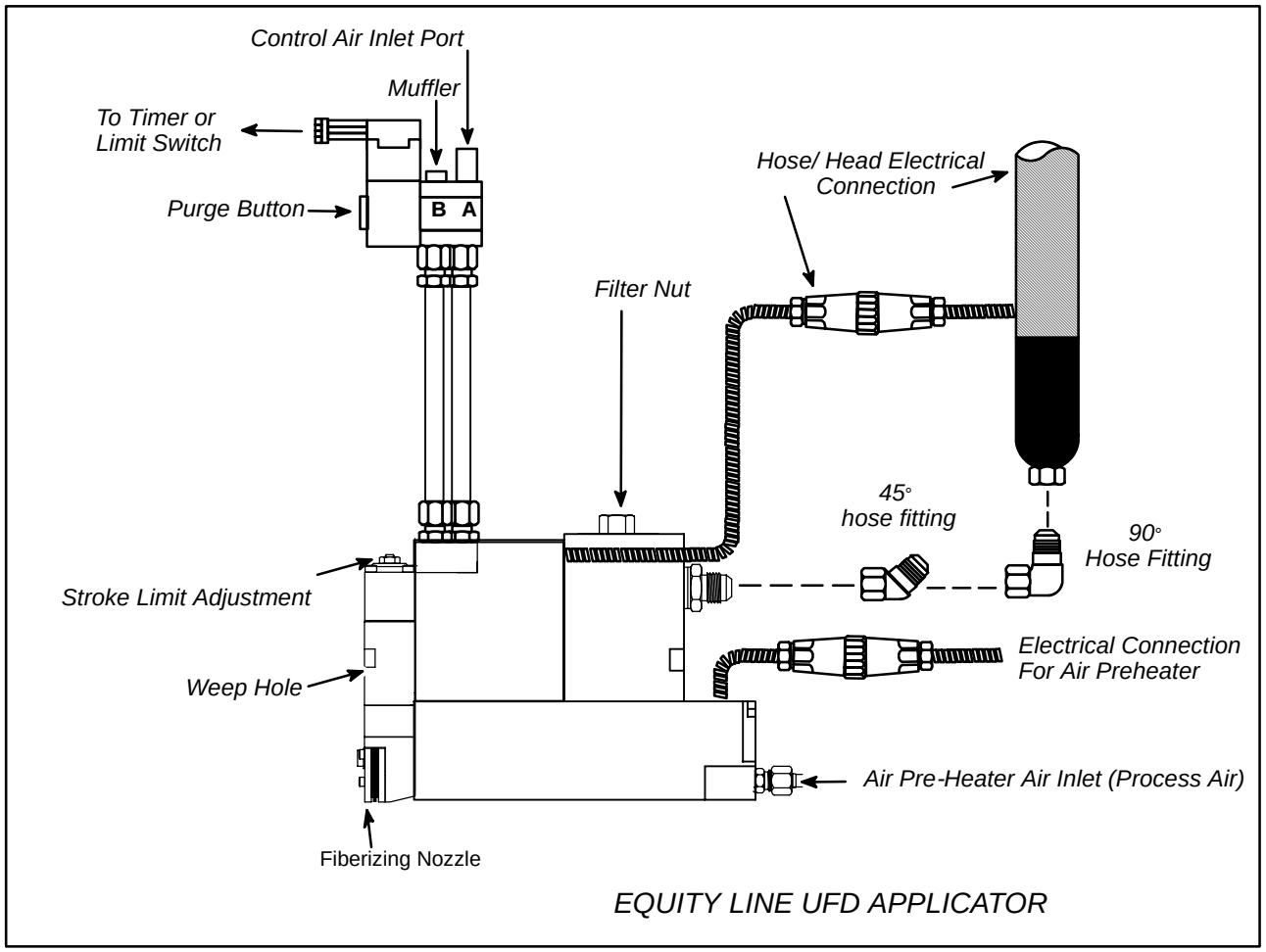
Installation Instructions

The applicator head has been tested at the factory and is ready for installation and operation. Applicators require at least one solenoid valve for each segment. If your head was ordered without a solenoid valve, a 4-way valve (or a 5-way valve for snuffback modules) should be mounted so that the air lines to each segment (or each module, depending on application) are as close to the same length as practical.

Note: air lines and fittings must be capable of withstanding temperatures up to 218°C (425°F). ITW Dynatec supplies Air Control Filter Coalescing Kits (PN 100055) to be used with air-operated applicators (see the Air Control Filter Coalescing Kit Manual in Appendix A of this manual).

cont.

For process (preheater) air control, the filter/ regulator kit PN 107404 is recommended. It contains a 0-50 psi air filter/ regulator combination and a liquid-filled gauge for accurate process air control. See the Process Air Control Filter/ Regulator information in Appendix B.



See the diagram above for location of the components referred to in the following section.

1. Mounting of the applicator is customer-defined. A layout of your specific applicator, with mounting dimensions and holes, is enclosed with this manual. If necessary, consult ITW Dynatec for assistance.

2. Before making the adhesive connection to the applicator, align the adhesive supply hose with its electrical connector oriented in relation to the electrical connector on the top, back of the applicator (or segment). Connect the swivel fitting of the hot melt hose to the adapter on the service block, using the inlet port located below the filter nut. When tightening the hose fitting, hold the hose cuff to prevent the hose core from rotating.

3. Make the electrical connection from the hose to the applicator by connecting the female (internal) connector of the hose to the male (external) connector of the applicator.

4. Connect the spray air line to the preheater using the adapter provided. Do not overtighten the compression fitting or the air line could collapse, reducing air flow.

5. Make the electrical connection from the extension cable to the preheater by connecting the female connector (receptacle) of the cable to the male connector (plug) of the preheater.

6. When connecting the air lines to the applicator, the air line which has air pressure to the module when the solenoid is OFF is the closing air line. See Appendix A and B for details and diagrams of solenoid setup.

CAUTION: Do not use lubricating oil with the air supply as applicators are lubricated at the factory and do not require lubrication when used in production. Where oil is present in the air supply, a coalescing filter (Dynatec PN 100055) must be installed between the standard air regulator/ filter and the applicator.

7. It is advisable to check the temperature of the applicator. This can be done through the temperature readout of the adhesive supply unit. Surface temperature may be checked with a separate pyrometer and surface probe or with a dial thermometer. Turn the system power switch ON. Permit the applicator to warm up at least 15 minutes (5 minutes for module change) before reading temperature. For steel applicators, wait at least 30 minutes (10 minutes for module change) before reading temperature.

8. Purge the applicator of air and oil. Turn the applicator ON electrically and pneumatically.

WARNING HIGH PRESSURE

During the purging procedure, hot adhesive and oil can come out of the head under high pressure. Wear safety glasses, gloves and protective clothing.

WARNING

Use a stable, deep container to collect hot-melt adhesive and/ or oil.

Remove the nozzle from the module. Place a heat resistant container under the module to collect the material that drains from the applicator. Manually open the solenoid by pushing (with a small screwdriver or other tool) the purge button located on the solenoid coil. Continue to hold in the purge button until all air and oil have drained and only adhesive flows from the module.

9. Replace the nozzle, orienting the nozzle tip so it points toward the substrate.

Chapter 4
MAINTENENCE

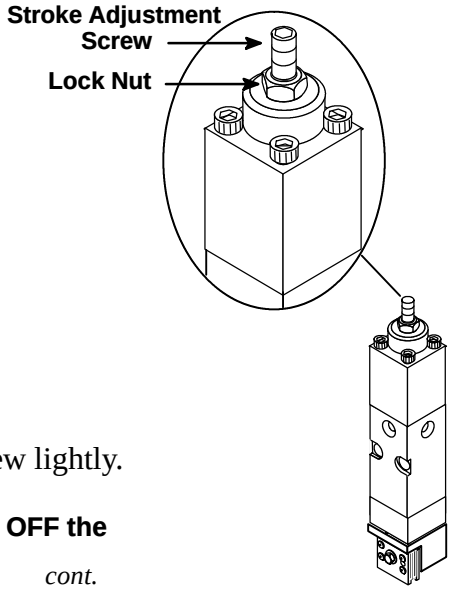
Note: Re-read Chapter 1 "Safety Precautions" before performing any maintenance procedures. All maintenance procedures must be performed by qualified, trained technicians.

The applicator requires no regular maintenance. Wipe the applicator clean of adhesive with a clean cloth while still hot at the end of each shift. Inspect the applicator periodically as outlined in the following table.

Maintenence Schedule

ITEM	CHECK	FREQUENCY	ACTION
Adhesive supply hose fitting connection	Inspect for leaks	As required	Tighten if loose
Air supply connections	Inspect for leaks	As required	Tighten if loose
Weep holes	Inspect for adhesive	As required	Replace seal cartridge or valve module
Nozzle performance	Inspect all nozzles for proper operation	As required	Clean nozzle or re-adjust stroke limiter
Built-in filter	Inspect for cleanliness	Monthly or as required by use	Replace filter element

Stroke Limit Adjustment



All conventional modules are equipped with a stroke limit adjustment. For snuffback modules, the stroke is factory pre-set and no field adjustment is necessary.

Whenever the conventional module is disassembled, the stroke limit must be adjusted using the following procedure:

1. Bring applicator up to operating temperature.

2. Loosen the lock nut located on the top of the module.

3. Using a 3/32 allen wrench, bottom the stroke adjustment screw lightly.

CAUTION: Tightening the stroke adjustment to shut OFF the nozzle will cause damage to the applicator.

cont.

4. Back off the screw one-half to one turn.

5. While holding the screw in positon, tighten the lock nut.

Replacement of the Built-in Filter

WARNING HIGH PRESSURE

During this procedure, hot adhesive can come out of the applicator under high pressure. Wear safety glasses, gloves and protective clothing.

The applicator must be at operating temperature. Turn the ASU's pump/ motor OFF.

1. Place a heat-resistant container under the module(s).

2. Relieve the adhesive pressure by manually opening the modules. This is done by:
   a. pushing the purge button located on the side of the air solenoid coil, or
   b. opening the set screw within the depressurization port (on the filter block, see illustration below), or
   c. if the ASU filter manifold is equipped with a drain, adhesive pressure may be relieved at the ASU.

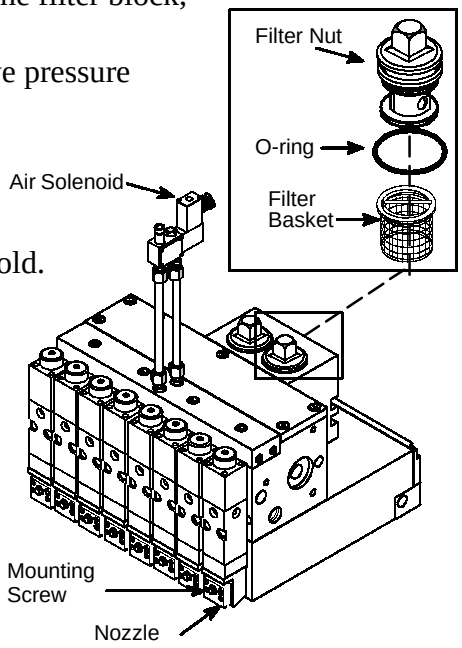
3. Unscrew and remove the filter nut.

4. With needle nose pliers, pull the filter basket out of the manifold.

5 Replace the o-ring on the filter nut. Apply o-ring lubricant (PN N07588) to the new o-ring.

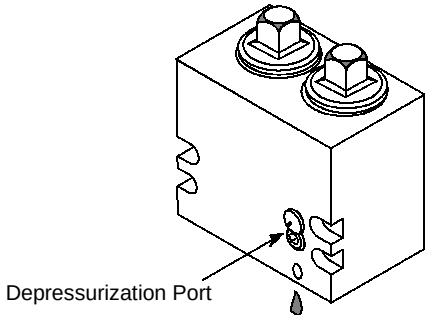
6. Apply a coat of anti-seize to the threads of the filter nut.

7. Re-install the filter basket and the filter nut. Tighten the filter nut until it is seated firmly, taking care not to cut the o-ring.



8. If opened in procedure above, close the depressurization port.

Back View of Filter Block



UFD Nozzle Cleaning

Occasionally nozzles can become clogged with char, residue or other foreign material. This can result in the decrease or even stoppage of glue flow. Use one of the following two methods to clean nozzles.

Cleaning by High Temperature Oven

For routine nozzle cleaning, a high temperature oven should be utilized. An optional UFD Nozzle Cleaning Oven (PN 107307 or 107306) is available from ITW Dynatec. Instructions for the use of the Dynatec oven are outlined in Appendix D of this manual.

However, after several cleanings in a oven, nozzles must be disassembled and soaked in solvent in order to remove all contaminants. Perform the following procedure as needed:

Cleaning by Nozzle Disassembly

The nozzle must be at operating temperature when cleaned. Turn the ASU OFF. Turn adhesive pressure OFF (zero).

1. Remove the nozzle from the module by loosening its mounting screw (see illustration above).

2. Remove the mounting screw and the four cap screws from the nozzle.

3. Separate the nozzle from its front and rear mounting plates.

4. Soak the nozzle plates in solvent. If necessary, use a non-metallic brush to remove any foreign material, being careful not to damage any of the nozzle's orifices. Be sure to remove all residue before re-assembling.

Spray Nozzle Cleaning

Occasionally spray nozzles can become clogged with char, residue or other foreign material. This can result in the decrease or even stoppage of glue flow. ITW Dynatec has three nozzle cleaning kits available, which are orifice-size specific:

PN 101877	Nozzle Cleaning Kit: 0.010 to 0.017 orifice
PN 101878	Nozzle Cleaning Kit: 0.018 to 0.027 orifice
PN 101879	Nozzle Cleaning Kit: 0.028 to 0.040 orifice

WARNING HIGH PRESSURE

Turn OFF and relieve system pressure before performing this procedure. Wear safety glasses, gloves and protective clothing.

The nozzle must be at operating temperature when cleaned. Turn the ASU OFF. Turn adhesive pressure OFF (zero). Remove the nozzle retaining nut and nozzle.

Use the reamers in the kit to clear the orifice. Since there are several orifice sizes available, first

cont.

make sure that the reamer is compatible with the orifice size you are about to clean. Carefully insert the reamer into the tip of the nozzle.

CAUTION: If a reamer of too large a diameter is used to clean the orifice, it could result in a broken reamer jammed in the nozzle, or damage to the nozzle itself.

Chapter 5
TROUBLESHOOTING & SERVICE

Note: Re-read Chapter 1 Safety Precautions" before performing any troubleshooting or repair procedurs. All troubleshooting or repair procedures must be performed by qualified, trained technicians.

Modules Which Are Not Serviceable

The following modules cannot be customer-serviced:

PN 110840 Module, UFD, SB, TP
PN 111074 Module, T+SB, Ver
PN 111172 Module, T+SB, Hor, QC
PN 111173 Module, T+SB, Ver, QC
PN 111174 Module, T+SB, Hor, QC w. pins
PN 111175 Module, T+SB, Ver, QC w. pins

In General

If failure occurs, first check all the electrical and pneumatic connections. Verify that the main power switch is ON at the ASU. Verify that the pump is ON and the application heads have sufficient air pressure. Verify that the temperature controller is in operation and that the setpoints are correct for the application. Check to see if all components are heating properly.

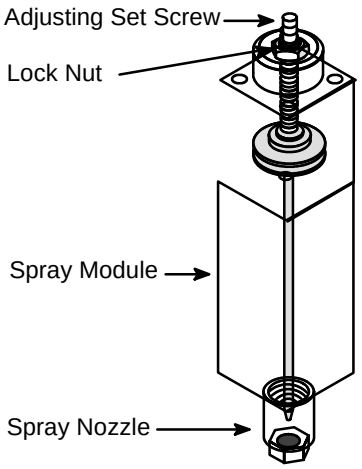
Troubleshooting Guide

Problem	Possible Cause	Solution
Module does not open	1. Temperature adjustment of head is too low.	1. Check temperature adjustment.
	2. Inoperative solenoid.	2. Push the solenoid's manual button. If it opens, the problem is electrical.
No adhesive flowing out of module	1. Nozzle is clogged.	1. Clean or replace nozzle.
	2. Filter element is dirty.	2. Replace filter, see instructions in Ch. 4 Maintenence.
	3. Module seals (o-rings) are inoperative.	3. Check module o-rings, see instructions in this chapter: "Module Assembly Instructions."
	4. ASU's hopper is empty.	4. Re-fill hopper.
	5. Adhesive is too cold.	5. Adjust temperature, see ASU manual.
	6. Solenoid valve is not opening.	6. Check solenoid valve.
	7. Piston stroke is too low.	7. Adjust the stroke limit, see Ch. 4 Maintenence.

Problem	Possible Cause	Solution
Hot melt is coming out of the module's "weep" holes	1. Module seals are damaged.	1. Replace seal cartridge or module, see instructions in this chapter.
Applicator does not reach operating temperature	1. Hopper temperature setpoint is too low. 2. Inoperative heater cartridge. 3. Inoperative temperature sensor.	1. Change setpoint, see ASU manual. 2. Check/ replace heater cartridge, see instructions in this chapter. 3. Check/ replace sensor, see instructions in this chapter.
Applicator is too hot	1. Applicator temperature setpoint is too high. 2. Inoperative temperature sensor.	1. Change setpoint, see ASU manual. 2. Check/ replace sensor, see instructions in this chapter.
Air escapes from module	1. Inoperative piston o-ring. 2. O-rings located between module and service block are inoperative.	1. Replace o-ring, see instructions in this chapter. 2. Remove module from block (see instructions in this chapter: "Replacement of Module") and replace o-rings.
Application pattern is erratic	1. Adhesive pressure is too low. 2. Adjust pattern controller.	1. a. *For units without speed control:* increase adhesive pressure at ASU. b. *For units with speed control (tach follower):* adjust pump speed control. 2. See pattern controller manual for proper adjustment.
Adhesive is not spiraling (on spiral spray modules only)	1. Air channel or nozzle orifices are clogged. 2. Adhesive pressure is too low. 3. Spiral air temperature is too low.	1. Clean channel; clean or replace nozzle. 2. See solution for erratic pattern above. 3. Adjust temperature of the air heater.

Troubleshooting PN 084B1388 Spray Nozzles

There are several ways to adjust the spray of adhesive as it exits the spray nozzle so that a consistent, desirable coating is achieved.



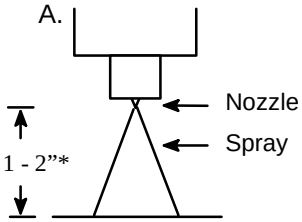
The most common spray adjustment is made by turning the Adjusting Screw located on the top of the module (see illustration at left). The typical spray adjustment is set between a 1/8 turn to a 1/2 turn open.

TO ADJUST: Loosen the lock nut. Turn the adjusting set screw clockwise until it stops. Then turn counter-clockwise to the proper position for your application (1/8 or 1/4 or 3/8 or 1/2 turn as determined below). Lock the screw in place with the lock nut.

TO DETERMINE SCREW POSITION:
1/8 turn is the normal position for a very light weight adhesive with a low viscosity between 500 cps to 1,500 cps. This application utilizes a nozzle with a small orifice (.010 - .020).
1/4 turn is normal for light to medium weight adhesives with low to medium viscosity (1,500 cps to 5,000 cps), utilizing a small to medium orifice nozzle (.020 - .030).
3/8 to 1/2 turn is the normal range for medium to heavy weight adhesive with medium to high viscosity (5,000 cps to 60,000 cps), utilizing a nozzle with a medium to large orifice (.030 - .052).

The illustrations below show some typical application problems, and give recommended solutions.

A.

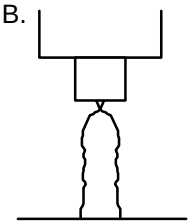


CORRECT PATTERN

Note: Air pressure is 5 to 15 PSI on examples A, B & C.

*1.5 - 2" is typical for non-wovens application.

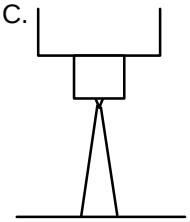
B.



PROBLEM: Inconsistent, unstable spray pattern. Width of pattern varies.

SOLUTION: 1.Check the needle valve, it may be too far closed. 2.The nozzle orifice is too large for the amount of adhesive being used. Increase adhesive flow to correct pattern or utilize a smaller nozzle orifice for reduced coat weight.

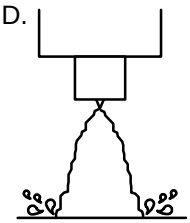
C.



PROBLEM: The spray pattern is too narrow (constricted).

SOLUTION: 1. Check the needle valve, it may be too far open. 2. The nozzle orifice is too small for the amount of adhesive being used; decrease adhesive flow to widen the pattern. 3. Increase nozzle orifice size.

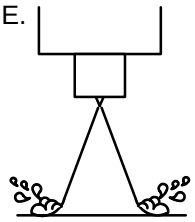
D.



PROBLEM: Spray pattern is too wide and unstable. Spray patterns on multi-port heads overlap.

SOLUTION: Caused by too low adhesive flow with too much air pressure. Increase adhesive flow and decrease PSI.

E.



PROBLEM: Adhesive bounces around edges of the pattern. Application is too wide.

SOLUTION: 1. Too much air pressure. Reduce PSI. 2. Nozzle is too close to the web. Raise the head.

Replacement of the Standard Module

Turn the ASU OFF. Turn all adhesive and air pressure OFF.

WARNING HIGH PRESSURE

During this procedure, hot adhesive can come out of the applicator under high pressure. Wear safety glasses, gloves and protective clothing.

1. Place a heat-resistant container under the manifold.

2. Relieve the adhesive pressure by manually opening the modules. This is done by pushing the purge button located on the side of the air solenoid coil. Or, if the ASU filter block is equipped with a drain, adhesive pressure may be relieved at the ASU.

3. Remove the module from the service block by removing the two mounting screws on the front of the module with a hex key screwdriver (allen wrench). Make sure that the old o-rings located on the back of the module are also removed (the new module will include new o-rings).

4. Mount the new module using a 4mm (5/32”) hex key on the mounting screws.

*Replacement of the Quick Change (QC) Module**

Turn the ASU OFF. Turn all adhesive and air pressure OFF.

WARNING HIGH PRESSURE

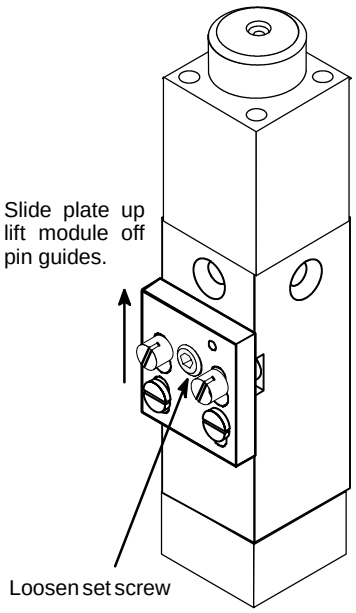
During this procedure, hot adhesive can come out of the applicator under high pressure. Wear safety glasses, gloves and protective clothing.

1. Place a heat-resistant container under the manifold.

2. Relieve the adhesive pressure by manually opening the modules. This is done by pushing the purge button located on the side of the air solenoid coil. Or, if the ASU filter block is equipped with a drain, adhesive pressure may be relieved at the ASU.

3. Remove the module from the service block by loosening the M8 set screw located near the center of the clamp plate with an allen wrench. Then slide the clamp plate up and lift the module off of its guide pins. Make sure that the old o-rings located on the back of the module are also removed (the new module will include new o-rings).

4. Mount the new module onto the guide pins, push the clamp plate down and tighten the set screw.



* Patent Pending

To Replace a Standard Module with a Quick Change (QC) Module

Turn the ASU OFF. Turn all adhesive and air pressure OFF.

WARNING HIGH PRESSURE

During this procedure, hot adhesive can come out of the applicator under high pressure. Wear safety glasses, gloves and protective clothing.

1. Place a heat-resistant container under the manifold.

2. Relieve the adhesive pressure by manually opening the modules. This is done by pushing the purge button located on the side of the air solenoid coil. Or, if the ASU filter block is equipped with a drain, adhesive pressure may be relieved at the ASU.

3. Remove the standard module from the service block by removing the two mounting screws on the front of it with a hex key screwdriver (allen wrench). Make sure that the old o-rings located on the back of the module are also removed (the new module will include new o-rings).

4. Install the quick change module's two guide pins into the two holes on the service block where the standard module's mounting screws were.

5. Mount the new QC module onto the guide pins, push the clamp plate down and tighten the set screw with an allen wrench.

Module Assembly Instructions for the PN 084B1388 Spiral Spray Module or PN 084B1328 Bead Module

Use the component illustration and parts list in Chapter 6 as a reference with the following instructions for the MR1300 spray module. ITW Dynatec has a Module Seal Kit available (PN 084B1378) which contains the components necessary to rebuild one module, including the seal cartridge assembly, all o-rings, springs and seal lubricant.

1. During re-assembly, coat all o-rings with a liberal amount of High Temp Lube (PN N07588).

CAUTION: DO NOT SUBSTITUTE! Failure to use High Temp Lube (N07588) may result in premature seal breakdown and leakage of glue from the applicator.

2. Insert the new seal cartridge assembly into the module body. (Note that there are two holes in the seal cartridge cavity in the module body. One hole accepts the roll pin in the seal cartridge. The other is an air hole which must line up with the air hole in the seal cartridge.) Align the roll pin in the seal cartridge with the corresponding hole in the top of the module body. Press the seal cartridge into position. *The air hole in the seal cartridge must align with the air hole in the module body for the valve to function properly.*

3. Place a new piston o-ring onto the stem assembly and slowly insert the stem assembly into the seal cartridge.

4. Place the two new springs on top of the piston. The smaller spring will nest inside the larger spring.

cont.

5. Loosen and back out the adjusing screw in the air cylinder. Place the air cylinder over the springs and piston and press down into place. Take care not to dislodge the springs or damage may result. Secure the air cylinder with the four mounting screws.

6. Place a new o-ring on the seat assembly and insert the seat assembly into the bottom of the module body. Place the retainer plate over the seat and secure with the four mounting screws. Spring resistance will be felt as the screws are tightened. Tighten the screws evenly to avoid binding.

7. Place new o-rings into the grooves on the rear face of the module and mount the module onto the service block.

8. Allow five minutes for the module to heat. Adjust the stem stroke to the desired setting.

To disassemble, reverse above order.

Module Assembly Instructions for the PN 104993 and 107078 UFD Modules

Use the component illustration and parts list in Chapter 6 as a reference with the following instructions for the PN 104993 and 107078 MR1300 UFD modules. ITW Dynatec has a Module Seal Kit available (PN 105150) which contains the components necessary to rebuild one module, including the seal cartridge assembly, all o-rings, springs and seal lubricant.

1. During re-assembly, coat all o-rings with a liberal amount of High Temp Lube (PN N07588).

CAUTION: DO NOT SUBSTITUTE! Failure to use High Temp Lube (N07588) may result in premature seal breakdown and leakage of glue from the applicator.

2. Insert the new seal cartridge assembly into the module body. (Note that there are two holes in the seal cartridge cavity in the module body. One hole accepts the roll pin in the seal cartridge. The other is an air hole which must line up with the air hole in the seal cartridge.) Align the roll pin in the seal cartridge with the corresponding hole in the top of the module body. Press the seal cartridge into position. *The air hole in the seal cartridge must align with the air hole in the module body for the valve to function properly.*

3. Place a new piston o-ring onto the stem assembly and slowly insert the stem assembly into the seal cartridge.

4. Place the two new springs on top of the piston. The smaller spring will nest inside the larger spring.

5. Loosen and back out the adjusting screw in the air cylinder. Place the air cylinder over the springs and piston and press down into place. Take care not to dislodge the springs or damage may result. Secure the air cylinder with the four mounting screws.

6. Place new o-rings on the seat assembly and insert the seat assembly into the bottom of the

cont.

module body. Secure with the four mounting screws. Spring resistance will be felt as the screws are tightened. Tighten the screws evenly to avoid binding.

7. Place new o-rings into the grooves on the rear face of the module and mount the module onto the service block.

8. Allow five minutes for the module to heat. Adjust the stem stroke to the desired setting.

To disassemble, reverse above order.

Module Assembly Instructions for the PN 106224 UFD or 106226 Hi Temp Module

Use the component illustration and parts list in Chapter 6 as a reference with the following instructions for the PN 106224 or 106226 module. ITW Dynatec has a Module Seal Kit available (PN 105150/ 803012 for Hi Temp) which contains the components necessary to rebuild one module, including the seal cartridge assembly, all o-rings, springs and seal lubricant.

1. During re-assembly, coat all o-rings with a liberal amount of High Temp Lube (PN N07588).

CAUTION: DO NOT SUBSTITUTE! Failure to use High Temp Lube (N07588) may result in premature seal breakdown and leakage of glue from the applicator.

2. Insert the new seal cartridge assembly into the module body. (Note that there are two holes in the seal cartridge cavity in the module body. One hole accepts the roll pin in the seal cartridge. The other is an air hole which must line up with the air hole in the seal cartridge.) Align the roll pin in the seal cartridge with the corresponding hole in the top of the module body. Press the seal cartridge into position. *The air hole in the seal cartridge must align with the air hole in the module body for the valve to function properly.*

3. Place a new piston o-ring onto the stem assembly and slowly insert the stem assembly into the seal cartridge.

4. Place the two new springs on top of the piston. The smaller spring will nest inside the larger spring.

5. Loosen and back out the adjusting screw in the air cylinder. Place the air cylinder over the springs and piston and press down into place. Take care not to dislodge the springs or damage may result. Secure the air cylinder with the four mounting screws.

6. Place new o-rings on the seat assembly and insert the seat assembly into the bottom of the module body.

7. Place new o-rings on the vertical adapter. Place the brass seal and the vertical adapter onto the seat assembly and secure with the four mounting screws. Spring resistance will be felt as the screws are tightened. Tighten the screws evenly to avoid binding.

8. Place new o-rings into the grooves on the rear face of the module and mount the module onto the service block.

9. Allow five minutes for the module to heat. Adjust the stem stroke to the desired setting.

To disassemble, reverse above order.

Module Assembly Instructions for the PN 107030 Snuffback Module

Use the component illustration and parts list in Chapter 6 as a reference with the following instructions for the PN 107030 MR1300 UFD Snuffback module. ITW Dynatec has a Module Renew Kit available (see Ch. 7) which contains the components necessary to renew one module, including the seal cartridge assembly, external o-rings, screws and seal lubricant.

Note: The internal design of the 107030 snuffback module is considerably different than conventional MR1300 modules. This module contains a seal cartridge assembly that serves as the sole service replacement part for the module. The seal cartridge assembly contains all of the internal wear items in the module (seals, backup rings, o-rings, etc.). Replacing the seal cartridge assembly therefore accomplishes a complete internal rebuild of the module in one simple operation. In addition, the stroke is preset at the factory, so no field adjustment is necessary.

The module temperature must be at or near the normal operating temperature of the adhesive during this procedure.

1. To disassemble the module, remove the four M3 cap screws that retain the air cylinder and remove the cylinder. Grasp the piston and pull the seal cartridge assembly straight up and out of the valve body.

2. Coat the o-rings on the new seal cartridge assembly with high-temperature lubricant and insert the assembly into the valve body. Make sure to align the locating pin on the seal cartridge with the corresponding hole in the valve body. The seal cartridge will fit in only one position. Press on the top of the seal cartridge (not the piston) to fully seat the assembly in the valve body.

3. Replace the air cylinder and secure with the four M3 cap screws. Tighten the screws evenly in a crosswise fashion to 20 in./lbs.

4. Mount the module to the service block and allow at least five minutes to heat.

Testing Resistance of Heater Cartridges

1. Turn the ASU OFF or disable the head (applicator) and preheater zones at the control panel. Disconnect all electrical cables from the head. Turn all pumps OFF and relieve system pressure before proceeding.

2. Unplug the electrical cable from the adhesive supply hose or extension cable to expose the pins in the cable.

cont.

3. Use the schematics in Ch. 8 to determine the correct pins used to measure the heater resistance. Compare the reading with the values given in the charts below.

Service Block Heaters

The service blocks of the Equity UFD applicators contain several (quantity depends on configuration) 10mm heaters wired in parallel. The parallel resistance values of these heaters is listed below:

Applicator Model	Qty. of Heaters	Parallel Resistance		
		Nominal	Minimum	Maximum
6-port segment	4	68.4 ohms	65	75
8-port segment	4	68.4 ohms	65	75
9-port segment	4	68.4 ohms	65	75
10-port segment	6	45.6 ohms	43	50
12-port segment	6	45.6 ohms	43	50
14-port* segment	4 ea. zone	68.4 ohms ea.	65	75

Air Preheater Heaters

The air preheaters contains several heaters wired in parallel. The heaters are located in the spiral tubes at the rear of the preheater and are 10mm diameter. The quantity of 10mm heaters depends on the width of the applicator. The parallel resistance values of these heaters is listed below:

Applicator Model	Qty. of Heaters	Parallel Resistance		
		Nominal	Minimum	Maximum
6-port segment	6	41.5 ohms	39	46
8-port segment	8	31.1 ohms	29	34
9-port segment	9	27.6 ohms	26	30
10-port segment	10	24.9 ohms	23	27
12-port segment	12	22.8 ohms	21	25
14-port* segment	7 ea. zone	39 ohms ea.	37	43

If one of the heaters is not functional, the parallel resistance as measured at the contact pins will be *higher* than the range given in the chart. To determine which heater is not functional, remove the cover plate and test each heater independently. The ohmmeter used will also have lead and contact resistance of approximately 0.5 ohm.

Testing Resistance of the RTD Temperature Sensor (used in DynaControl, PLC, MCV or Nickel RTD Upgrade models only)

1. Turn the ASU OFF or disable the head (applicator) and preheater zones at the control panel. Disconnect all electrical cables from the head. Turn all pumps OFF and relieve system pressure before proceeding.

2. Unplug the electrical cable from the adhesive supply hose or extension cable to expose the pins in the cable.

** The 14-port segment consists of two 7-port segments and functions as two temperature zones.*

Note: The resistance value (Ohms) of the temperature sensor depends on the temperature of the sensor at the time it is being tested. All values listed in the table below are given at 25°C (77°F). To correct for ambient temperatures other than 25°C, see Appendix 4 for complete resistance-temperature tables for the RTD sensors.

3. Using the schematics in Chapter 8 as a reference, measure the resistance of the sensor and compare to the values in the table below. A tolerance of ± 5% is allowed for ambient temperature differences. A sensor that tests outside of this range must be replaced.

Applicator Control	Sensor Resistance @ 25°C
DynaControl	110 ohms
MCV	110 ohms
Upgrade	138 ohms
PLC	110 ohms

Testing the J-type Thermocouple Temperature Sensor (used in J-type thermocouple upgrade models only)

1. Turn the ASU OFF or disable the head (applicator) and preheater zones at the control panel. Disconnect all electrical cables from the head. Turn all pumps OFF and relieve system pressure before proceeding.

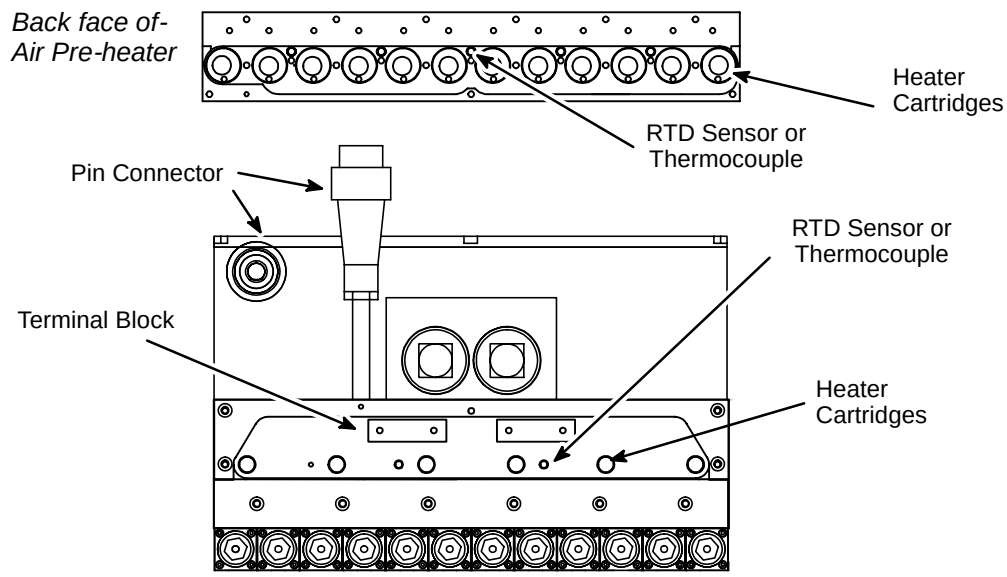
2. Unplug the electrical cable from the adhesive supply hose or extension cable to expose the pins in the cable.

3. Using the schematics in Chapter 8 as a guide, first measure the resistance across the thermocouple leads to check for an open junction. The resistance should be zero (allowing for the resistance of the test leads). If the resistance is high or infinite, an open junction or loose connection is indicated. If all the connections are secure, replace the thermocouple.

To test the thermocouple element further, the voltage potential across the thermocouple leads must be measured. This requires a test meter set to the DC millivolt range. For a J-type thermocouple, the voltage across the leads at 25°C (77°F) should be 1.28mV.

To correct for ambient termperatures other than 25°C, see Appendix 4 for a complete voltage-temperature table for the J-type thermocouple.

Replacement of Heater Cartridge or Sensor



Top View, Heater, RTD Sensor or Thermocouple Replacement Diagram

Replacement of Service Block Heater Cartridges

1. Turn OFF the ASU and relieve all system pressure before proceeding.

2. Disconnect the service block's electrical cable assembly from the hose and disconnect the preheater's cable assembly from its cable extension.

3. Remove the screws holding the junction cover plate. Remove the plate. Loosen the screws on the terminals in the cavity. Disconnect the heater leads from the terminal blocks.

4. Locate the non-functioning heater with a multimeter. Remove and replace the heater. Apply a thin film of thermal paste to the new heater before installation.

5. Reconnect the heaters to the terminal blocks, making sure that no strands of wire are protruding from the terminal blocks. Re-tighten the screws on the terminals.

6. Replace the junction cover plate.

Replacement of Air Preheater Heater Cartridges

See illustration on page 5-10 for parts locations.

1. Turn OFF the ASU and relieve all system pressure before proceeding.

2. Disconnect the service block's electrical cable assembly from the hose and disconnect the preheater's cable assembly from its cable extension.

3. Remove the screws from the junction cover. Remove the junction cover.

4. Disconnect the heater leads from the ceramic terminal blocks.

5. Locate the non-functioning heater with a multimeter.

6. Remove and replace the non-functioning heater. Apply a thin film of thermal paste to the new heater before installation.

7. Reconnect all heaters to the terminal blocks, making sure that no strands of wire are protruding from the terminal blocks.

8. Replace the junction cover.

Replacement of Service Block Temperature Sensor

Note: a High-Temp Splice Kit (PN 102645) is required for this procedure.

See illustration on page 5-10 for parts locations.

1. Disconnect the service block's electrical cable assembly from the hose and disconnect the preheater's cable assembly from its cable extension.

2. Remove the screws holding the junction cover plate. Remove the plate.

3. Pull the sensor out of the service block. Note: the sensor is located in a port at the center (or near the center) of the service block.

4. Cut the old sensor wires off as close to the sensor as possible.

5. Apply a thin film of thermal paste to the new sensor and place it in the service block. Trim the lead wires so that they overlap the old sensor wires by one to two inches. Strip the ends of all four wires.

6. Use the high-temp splice kit to connect the new sensor to the old sensor wires.

7. Place the wires in the wiring cavity and replace the junction cover.

Replacement of Air Preheater Temperature Sensor

Note: a High-Temp Splice Kit (PN 102645) is required to perform this procedure.

See illustration on page 5-10 for parts locations.

1. Disconnect the service block's electrical cable assembly from the hose and disconnect the preheater's cable assembly from its cable extension.

2. Remove the screws from the junction cover. Remove the junction cover.

3. Locate the ceramic terminal blocks which connect the sensor wires to the lead wires. Disconnect the old sensor from the terminal blocks and remove it from the preheater.

4. Apply a thin film of thermal paste to the new sensor, then install it in the preheater. Connect the new sensor wires to the terminal blocks.

5. Replace the junction cover.

Re-Assembly Procedures and General Cautions

Unless noted, head re-assembly is simply the reverse sequence of the disassembly procedures. However, the following "cautions" should be followed (whenever they apply) for proper re-assembly:

CAUTION: In general, all *O-RINGS AND SEALS* must be replaced whenever hot-melt equipment is re-assembled. All new o-rings must be lubricated with o-ring lube (PN N07588).

CAUTION: *TAPERED PIPE THREADS* are found on air line fittings used with the pump air supply and on the outlet filter manifold. Apply thread sealant (PN N02892) whenever tapered pipe threaded parts are re-assembled.

CAUTION: *SOME FITTINGS* used for adhesive on hot melt equipment have straight threads and o-ring seals. Use of thread sealant is not necessary with these parts, but the o-ring seals should be clean and lubricated. Tighten straight-threaded parts and fittings until their shoulders are firmly seated. Excessive torque may damage straight-threaded parts and the use of power wrenches is not recommended.

CAUTION: *HOT-MELT RESIDUE* must be cleaned from parts before they are re-assembled, particularly from threaded parts. As a precaution against adhesive residue preventing proper re-assembly, threaded parts must always be re-tightened at operating temperature.

Chapter 6
COMPONENT ILLUSTRATIONS & BILLS OF MATERIAL

WARNING

All parts must be periodically inspected and replaced if worn or broken. Failure to do this can affect equipment's operation and can result in personal injury.

The following pages provide exploded-view reference drawings to assist users of Dynatec adhesive applicators to identify parts and aid in servicing the equipment.

Equity Line Applicator Model Designation Guide

EQUFD XXX XX XX X X X X
EQUFD 200 08 HQ A 1 D 2

Applicator Length:
150 = 150mm (6 port)
200 = 200mm (8 port)
225 = 225mm (9 port)
250 = 250mm (10 port)
300 = 300mm (12 port)
350 = 350mm (14 port)

Number of Modules Installed:
06, 08, 09, 10, 12, 14
0Z = No Module

Module Type:
H = Horizontal UFD*
V = Vertical UFD*
K = Horizontal UFD Snuffback
F = Vertical UFD Snuffback
HQ = Horizontal Quick Change
VQ = Vertical Quick Change
KQ = Horizontal UFD Snuffback Quick Change
FQ = Vertical UFD Snuffback Quick Change

Filtration Options:
A = 100 mesh
B = 150 mesh
C = 200 mesh

Number of Solenoids:
1 = 1 solenoid
2 = 2 solenoids
S = Special (see Job Order)

Control:
D = DynaControl / PLC
M = MCV
N = Upgrade (Nickel RTD)
L = Upgrade (J-type thermocouple)

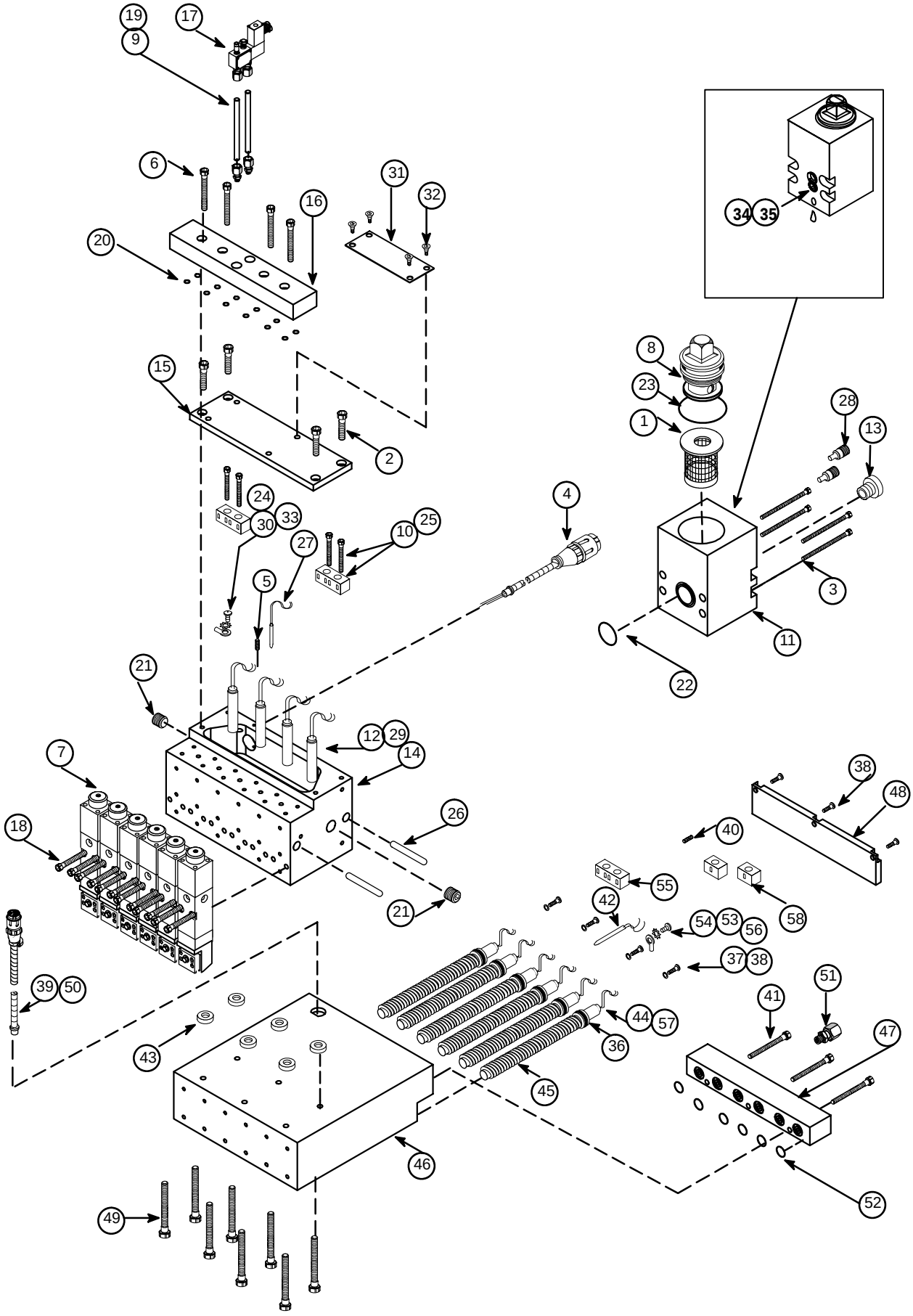
Voltage:
2 = 240 AC

Notes:
1. When specifying a head with no modules, (see "0Z" above)**,** the Module Type (H, V, etc.) must still be specified for the application.

* Conventional MR1300 modules

B.O.M: Typical 6 Port , Equity UFD Head-809160, (Verticle Nozzle Shown)

Item No.	Part Number	Description	Qty.
1	106273	Filter Basket	2
2	102446	M4-0.7 x 10 mm SHC Screw	4
3	809343	M6-1 x 60mm SHC Screw	4
4	See parent BOM	Cable Assembly, DCL	1
5	103470	M3-.5 x 5 mm Flat Point Set Screw	1
6	107531	M4 x 20mm SHC Screw	4
7	106224	MR1300, UFD, Verticlel Nozzle (Shown for Ref. Only)	8
8	106303	Filter Nut	1
9	106333	Stainless Steel Tube, 1/4 x .65w x 3.5lg	2
10	803087	M4-.7 x 16mm SHC screw	4
11	809154	Hose Filter Block	1
12	803960	Heater, 10 x 40mm, 240v, 200w	4
13	803984	Fitting, #6JIC x 1/2-14 BSPP	1
14	809153	Adhesive Manifold	1
15	809155	Junction Cover plate	1
16	809159	Solenoid Manifold (Shown For Ref. Only)	1
17		Solenoid & Accessories (See your order for part number)	1
18	804354	M5.8 x 30mm SHC screw	12
19	N00093	Compression Fitting	2
20	N00175	O-ring, -008	12
21	N00754	1/4 Level Seal Plug	2
22	N01010	O-ring, -021	1
23	N03812	O-ring, -125	1
24	N07354	M4-,7 x 10 mm	1
25	107881	Terminal Block Assembly	2
26	804356	Dowel Pin	2
27	See parent BOM	Temperature Sensor	1
28	104733	Transducer plug	2
29			
30	N04302	Star Washer	1
31	804477	Data Plate	1
32	105117	M4-.7 x 8mm Pan Head Screw	4
33	N04268	Terminal Ring	1
34	101833	10-32 x 12 Tamper Proof Screw	1
35	104852	M10 x 12 Cone Relief Screw	1
	809161	**8 Port Air Heater Assembly**	**1**
36	107430	O-ring, #-016	6
37	078C005	#8 Flat washer	4
38	102446	M4-4.7 x 10mm	7
39	See parent BOM	Cable Assembly, 240v, DCL	1
40	103470	M3-.5 x 5mm Flat point Set Screw	1
41	803083	M4-.7 x 34mm SHC Screw	3
42	See parent BOM	Temperature Sensor	1
43	803579	Spacer, .625 x .188 x .094	6
44	803905	Heater, 10 x 100mm, 240v, 220w	6
45	803979	Spiral Heater Tube	6
46	809156	Air Heater Body	1
47	809157	Air Manifold	1
48	809158	Junction Cover	1
49	804355	M4.7 x 50mm SHC screw	6
50	A48J164	Shrink tube, 3/16 (Not Shown used in cable assembly)	1
51	100460	Compression Fitting	1
52	N00178	O-ring, #-011	6
53	N04268	Terminal Ring	1
54	N07354	M4-,7 x 10mm Pan Head Screw	1
55	N07540	Terminal Block, Ceramic	4
56	N04302	Star Washer	1
57	104228	Crimp Wire End	14
58	N07541	Terminal Block, Small	2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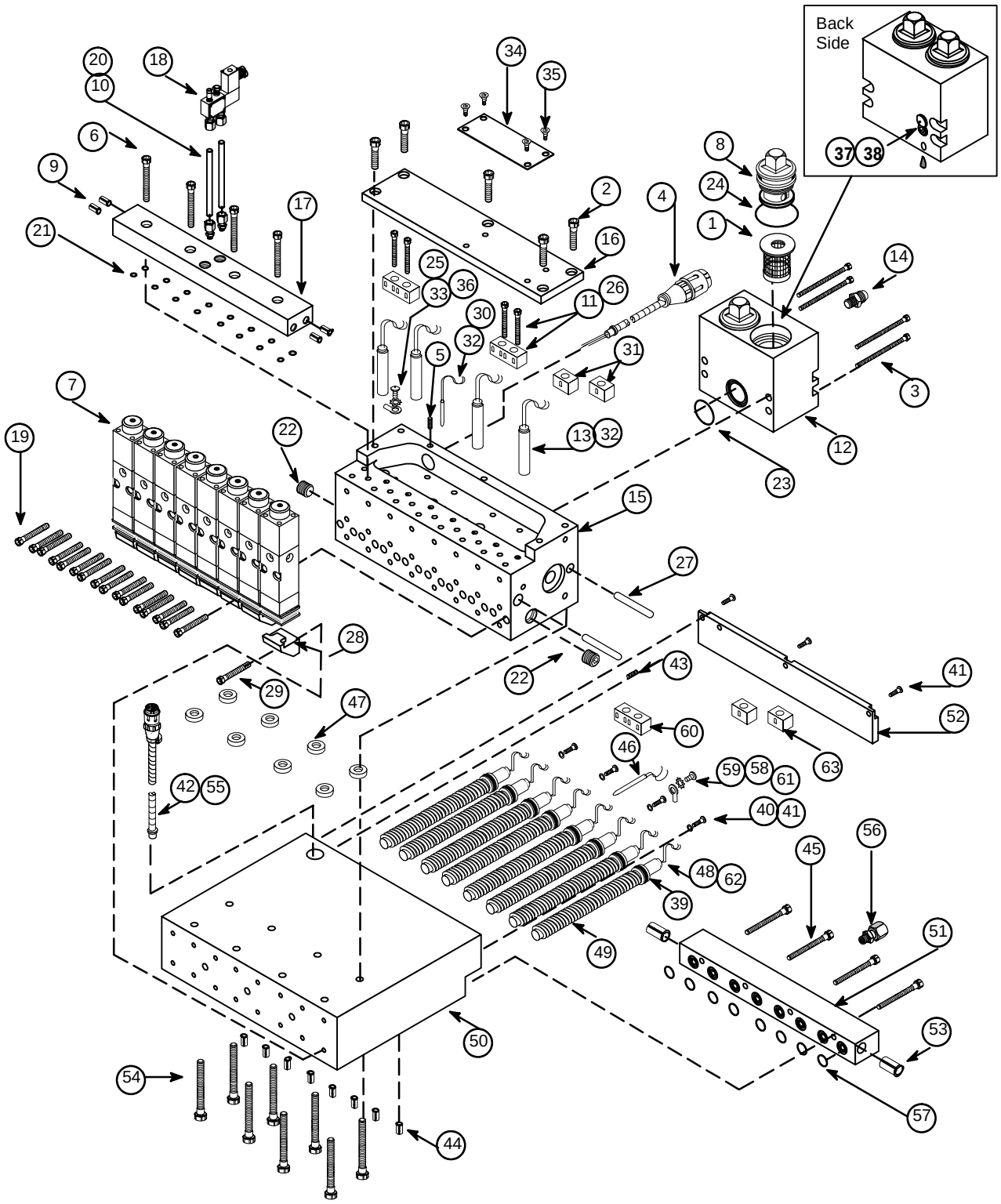
B.O.M: Typical 8 Port , Equity UFD Head-807320, (Horizontal Nozzle Shown)

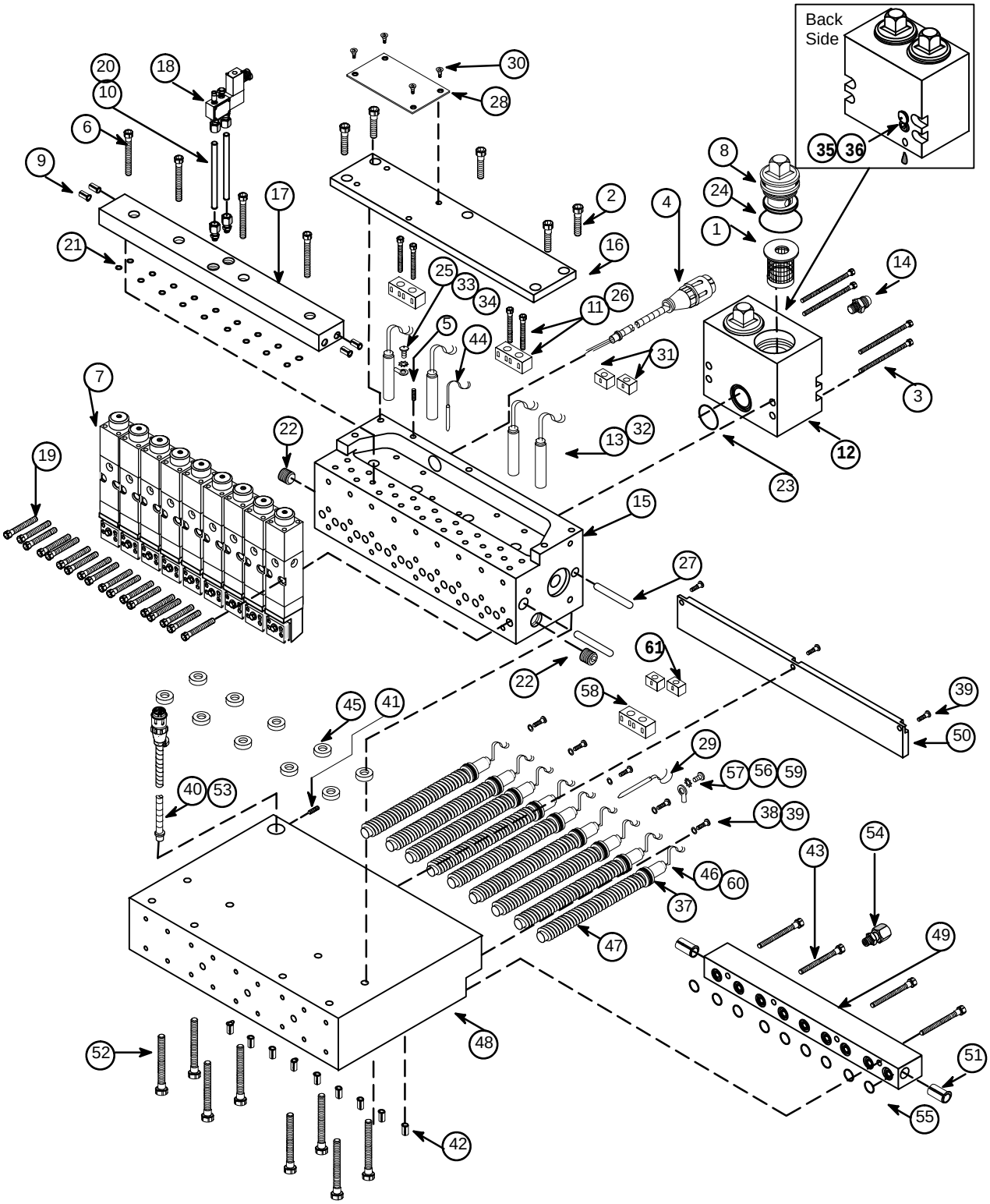
Item No.	Part Number	Description	Qty.
1	See Ordering Guide	Filter Basket	2
2	102446	M4-0.7 x 10 mm SHC Screw	5
3	102602	M6-1 x 60mm SHC Screw	4
4	See Ordering Guide	Cable Assembly, DCL	1
5	103470	M3-.5 x 5 mm Flat Point Set Screw	1
6	107531	M4 x 20mm SHC Screw	4
7	104993	MR1300, UFD, Horizontal Nozzle (Shown for Ref. Only)	8
8	106303	Filter Nut	2
9	805294	Expansion Plug	4
10	106333	Stainless Steel Tube, 1/4 x .65w x 3.5lg	2
11	803087	M4-.7 x 16mm SHC screw	4
12	803327	Dual Hose Filter Block	1
13	See Ordering Guide	Heater, 10 x 40mm, 240v, 200w	4
14	803984	Hose Fitting, #6JIC x 1/2-14 BSPP	1
15	804038	Adhesive Manifold	1
16	804042	Junction Cover plate	1
17	804043	Solenoid Manifold (Shown For Ref. Only)	1
18		Solenoid & Accessories (See your order for part number)	1
19	804354	M5.8 x 30mm SHC screw	16
20	N00093	Compression Fitting	2
21	N00175	O-ring, -008	16
22	N00754	1/4 Level Seal Plug	2
23	N01010	O-ring, -021	1
24	N03812	O-ring, -125	2
25	N07354	M4-,7 x 10 mm	1
26	804493	Terminal Block Assembly	2
27	804356	Dowel Pin	2
28	106471	Insulator	8
29	106328	M4 x 16mm SHC Screw	8
30	See Ordering Guide	Temperature Sensor	1
31	N07541	Terminal Block, Small	2
32	104228	Crimp Wire End	14
33	N04302	Star Washer	1
34	804477	Data Plate	1
35	105117	M4-.7 x 8mm Pan Head Screw	4
36	N04268	Terminal Ring	1
37	101833	10-32 x 12 Tamper Proof Screw	1
38	104852	M10 x 12 Cone Relief Screw	1
	807326	**8 Port Air Heater Assembly**	**1**
39	107430	O-ring, #-016 Kalrez	8
40	078C005	#8 Flat washer	4
41	102446	M4-4.7 x 10mm	7
42	See Ordering Guide	Cable Assembly, 240v, DCL	1
43	103470	M3-.5 x 5mm Flat point Set Screw	1
44	805880	Expansion Plug	8
45	803083	M4-.7 x 34mm SHC Screw	4
46	See Ordering Guide	Temperature Sensor	1
47	803579	Spacer, .625 x .188 x .094	8
48	See Ordering Guide	Heater, 10 x 100mm, 240v, 220w	8
49	803979	Spiral Heater Tube	8
50	804039	Air Heater Body	1
51	804040	Air Manifold	1
52	804041	Junction Cover	1
53	805880	3/8 Expansion Plug	2
54	804355	M4.7 x 50mm SHC screw	8
55	A48J164	Shrink tube, 3/16 (Not Shown used in cable assembly)	1
56	100460	Compression Fitting	1
57	N00178	O-ring, #-011	8
58	N04268	Terminal Ring	1
59	N07354	M4-,7 x 10mm Pan Head Screw	1
60	N07540	Terminal Block, Ceramic	2
61	N04302	Star Washer	1
62	104228	Crimp Wire End	14
63	N07541	Terminal Block, Small	2



Component Illustration: Typical 8 Port , Equity UFD Head, Horizontal Nozzle

B.O.M: Typical 9 Port , Stack Type, UFD Head-807321, (Vertical Nozzle Shown)

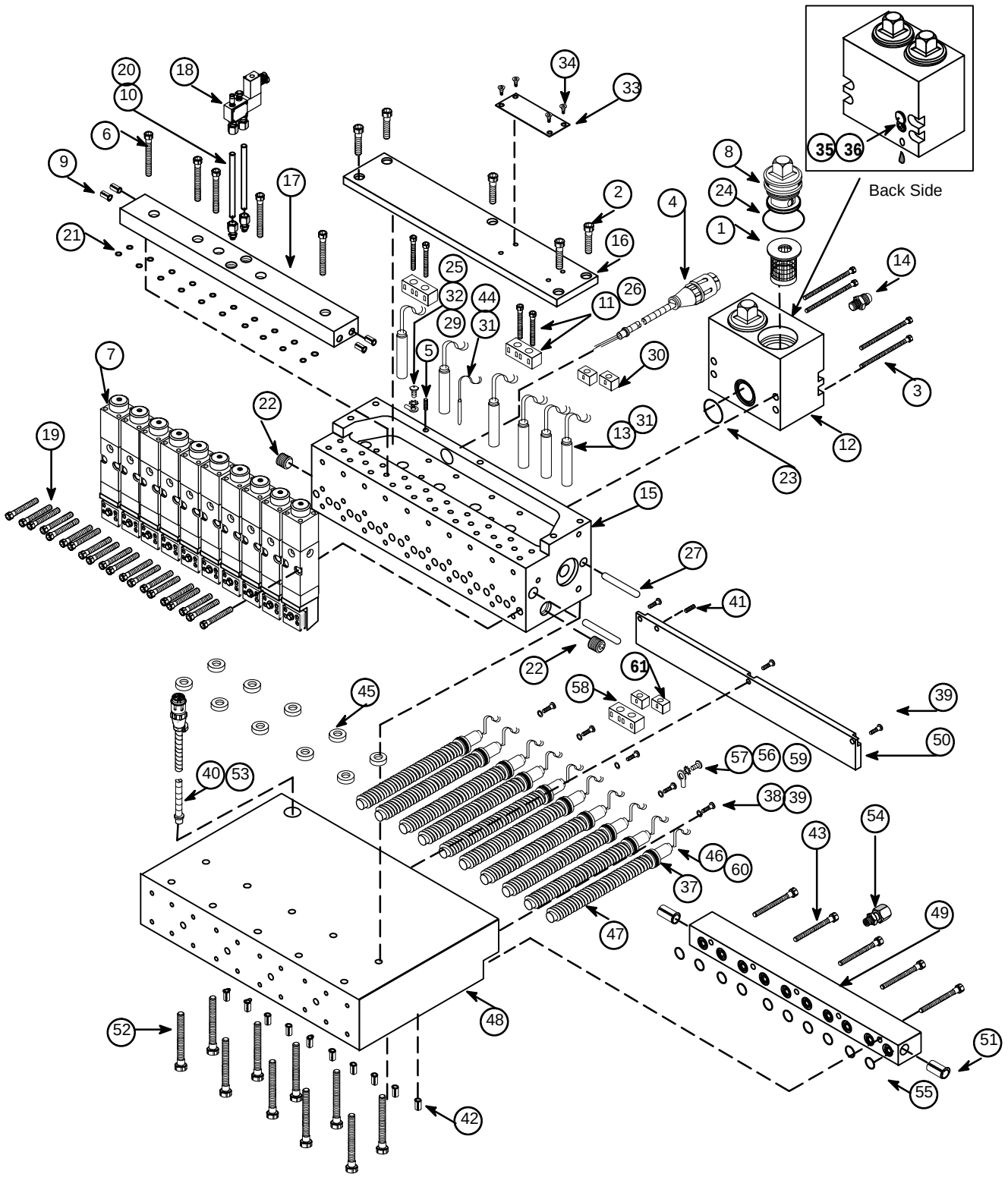
Item No.	Part Number	Description	Qty.
1	See Ordering Guide	Filter Basket	2
2	102446	M4-0.7 x 10 mm SHC Screw	5
3	102602	M6-1 x 60mm SHC Screw	4
4	See Ordering Guide	Cable Assembly, DCL	1
5	103470	M3-.5 x 5 mm Flat Point Set Screw	1
6	107531	M4 x 20mm SHC Screw	4
7	106224	MR1300, UFD, Extended Module (Shown for ref. only)	9
8	106303	Filter Nut	2
9	805294	Expansion Plug	4
10	106333	Stainless Steel Tube, 1/4 x .65w x 3.5lg	2
11	803087	M4-.7 x 16mm SHC screw	4
12	803327	Dual Hose Filter Block	1
13	See Ordering Guide	Heater, 10 x 40mm, 240v, 200w	4
14	803984	Hose Fitting, #6JIC x 1/2-14 BSPP	1
15	804220	Adhesive Manifold	1
16	804222	Junction Cover plate	1
17	804221	Solenoid Manifold (Shown For Ref. Only)	1
18		Solenoid & Accessories (See your order for part number)	1
19	804354	M5.8 x 30mm SHC screw	16
20	N00093	Compression Fitting	2
21	N00175	O-ring, -008	16
22	N00754	1/4 Level Seal Plug	2
23	N01010	O-ring, -021	1
24	N03812	O-ring, -125	2
25	N07354	M4-,7 x 10 mm	1
26	804493	Terminal Block Assembly	2
27	804356	Dowel Pin	2
28	804477	Data Plate	1
29	See Ordering Guide	Temperature Sensor	1
30	105117	M4 x 8mm Pan Head Screw	4
31	N07541	Terminal Block, Small	2
32	104228	Crimp Wire End	14
33	N04302	Star Washer	1
34	N04268	Terminal Ring	1
35	101833	10-32 x 12 Tamper Proof Screw	1
36	104852	M10 x 12 Cone Relief Screw	1
	807327	**9 Port Air Heater Assembly**	**1**
37	107430	O-ring, #-016 Hi-temp.	9
38	078C005	#8 Flat washer	4
39	102446	M4-4.7 x 10mm	7
40	See Ordering Guide	Cable Assembly, 240v, DCL	1
41	103470	M3-.5 x 5mm Flat point Set Screw	1
42	805880	3/8 Expansion Plug	9
43	803083	M4-.7 x 34mm SHC Screw	4
44	See Ordering Guide	Temperature Sensor	1
45	803579	Spacer, .625 x .188 x .094	8
46	See Ordering Guide	Heater, 10 x 100mm, 240v, 220w	9
47	803979	Spiral Heater Tube	9
48	804224	Air Heater Body	1
49	804225	Air Manifold	1
50	804226	Junction Cover	1
51	805880	3/8 Expansion Plug	2
52	804355	M4.7 x 50mm SHC screw	8
53	A48J164	Shrink tube, 3/16 (Not Shown used in cable assembly)	1
54	100460	Compression Fitting	1
55	N00178	O-ring, #-011	9
56	N04268	Terminal Ring	1
57	N07354	M4-,7 x 10mm Pan Head Screw	1
58	N07540	Terminal Block, Ceramic	2
59	N04302	Star Washer	1
60	104228	Crimp Wire End	14
61	N07541	Terminal Block, Small	2



Component Illustration: Typical 9 Port , Stack Type, UFD Head, Vertical Nozzle

B.O.M: Typical 10 Port , Stack Type, UFD Head-807322, (Vertical Nozzle Shown)

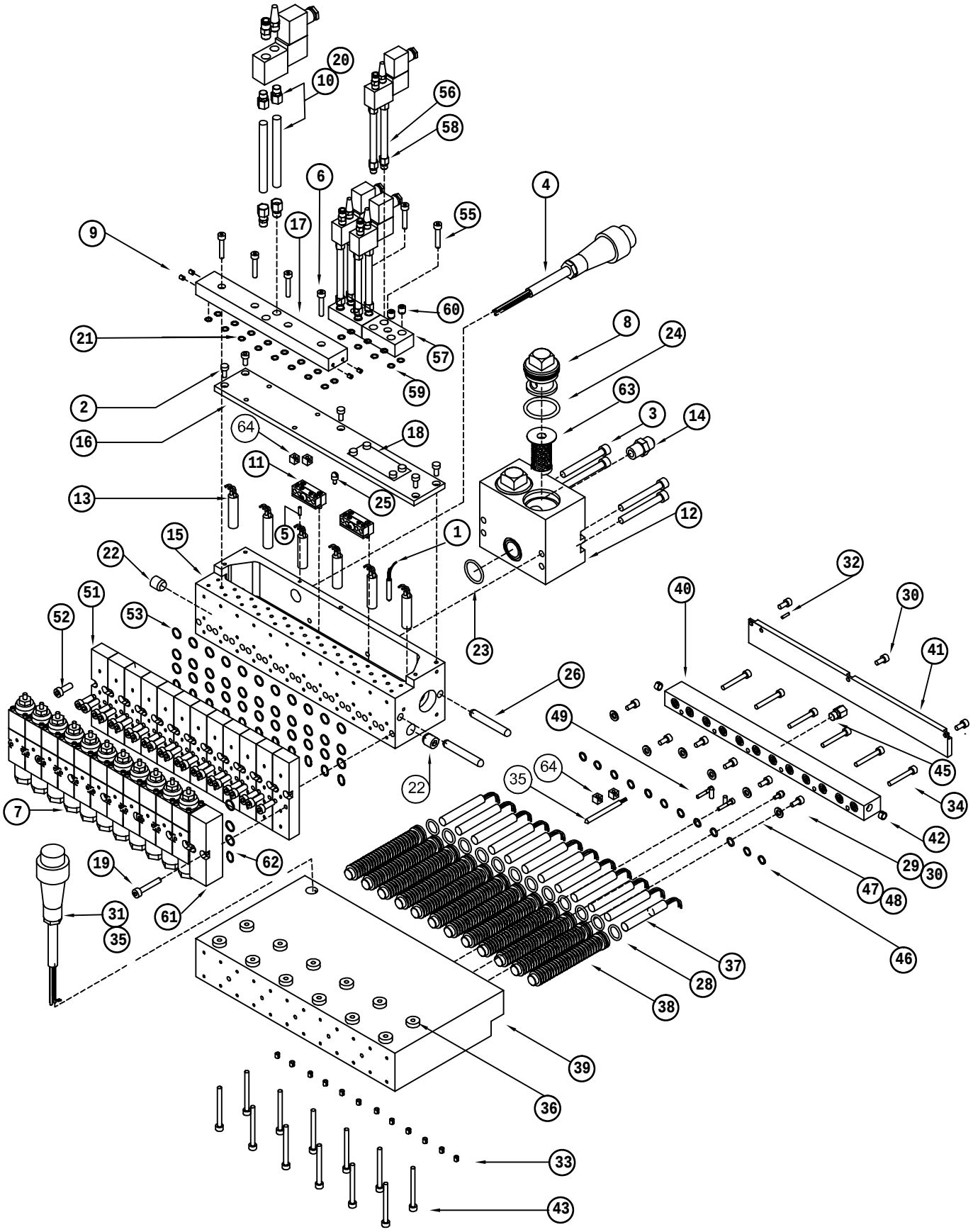
Item No.	Part Number	Description	Qty.
1	See Ordering Guide	Filter Basket	2
2	102446	M4-0.7 x 10 mm SHC Screw	5
3	102602	M6-1 x 60mm SHC Screw	4
4	See Ordering Guide	Cable Assembly, DCL	1
5	103470	M3-.5 x 5 mm Flat Point Set Screw	1
6	107531	M4 x 20mm SHC Screw	5
7	106224	MR1300, UFD, Extended Module (Shown For Ref. Only)	10
8	106303	Filter Nut	2
9	805294	Expansion Plug	4
10	106333	Stainless Steel Tube, 1/4 x .65w x 3.5lg	2
11	803087	M4-.7 x 16mm SHC screw	4
12	803327	Dual Hose Filter Block	1
13	See Ordering Guide	Heater, 10 x 40mm, 240v, 200w	6
14	803984	Hose Fitting, #6JIC x 1/2-14 BSPP	1
15	804142	Adhesive Manifold	1
16	804163	Junction Cover plate	1
17	804162	Solenoid Manifold	1
18		Solenoid & Accessories (See your order for part number)	1
19	804354	M5.8 x 30mm SHC screw	20
20	N00093	Compression Fitting	2
21	N00175	O-ring, -008	20
22	N00754	1/4 Level Seal Plug	2
23	N01010	O-ring, -021	1
24	N03812	O-ring, -125	2
25	N07354	M4-,7 x 10 mm	1
26	804493	Terminal Block Assemnbly	2
27	804356	Dowel Pin	2
28	See Ordering Guide	Temperature Sensor	1
29	N04268	Terminal Ring	1
30	N07541	Terminal Block, Small	2
31	104228	Crimp Wire End	14
32	N04302	Star Washer	1
33	804477	Data Plate	1
34	105117	M4 x 8mm Pan Head Screw	4
35	101833	10-32 x 12 Tamper Proof Screw	1
36	104852	M10 x 12 Cone Relief Screw	1
	807328	**10 Port Air Heater Assembly**	**1**
37	107430	O-ring, #-016 Kalrez	10
38	078C005	#8 Flat washer	5
39	102446	M4-4.7 x 10mm	8
40	See Ordering Guide	Cable Assembly, 240v, DCL	1
41	103470	M3-.5 x 5mm Flat point Set Screw	1
42	805880	3/8 Expansion Plug	10
43	803083	M4-.7 x 34mm SHC Screw	5
44	See Ordering Guide	Temperature Sensor, .625 x .188 x .094	1
45	803579	Spacer, .625 x .188 x .094	10
46	See Ordering Guide	Heater, 10 x 100mm, 240v, 220w	10
47	803979	Spiral Heater Tube	10
48	804160	Air Heater Body	1
49	804164	Air Manifold	1
50	804165	Junction Cover	1
51	805880	3/8 Expansion Plug	2
52	804355	M4.7 x 50mm SHC screw	10
53	A48J164	Shrink tube, 3/16 (Not Shown used in cable assembly)	1
54	100460	Compression Fitting	1
55	N00178	O-ring, #-011	10
56	N04268	Terminal Ring	1
57	N07354	M4-,7 x 10mm Pan Head Screw	1
58	N07540	Terminal Block, Ceramic	2
59	N04302	Star Washer	1
60	104228	Crimp Wire End	14
61	N07541	Terminal Block, Small	2



Component Illustration: Typical 10 Port , Stack Type, UFD Head, Vertical Nozzle

B.O.M: Typical 12 Port , Equity UFD Head-807323, (MR1300 Spray Module Shown)

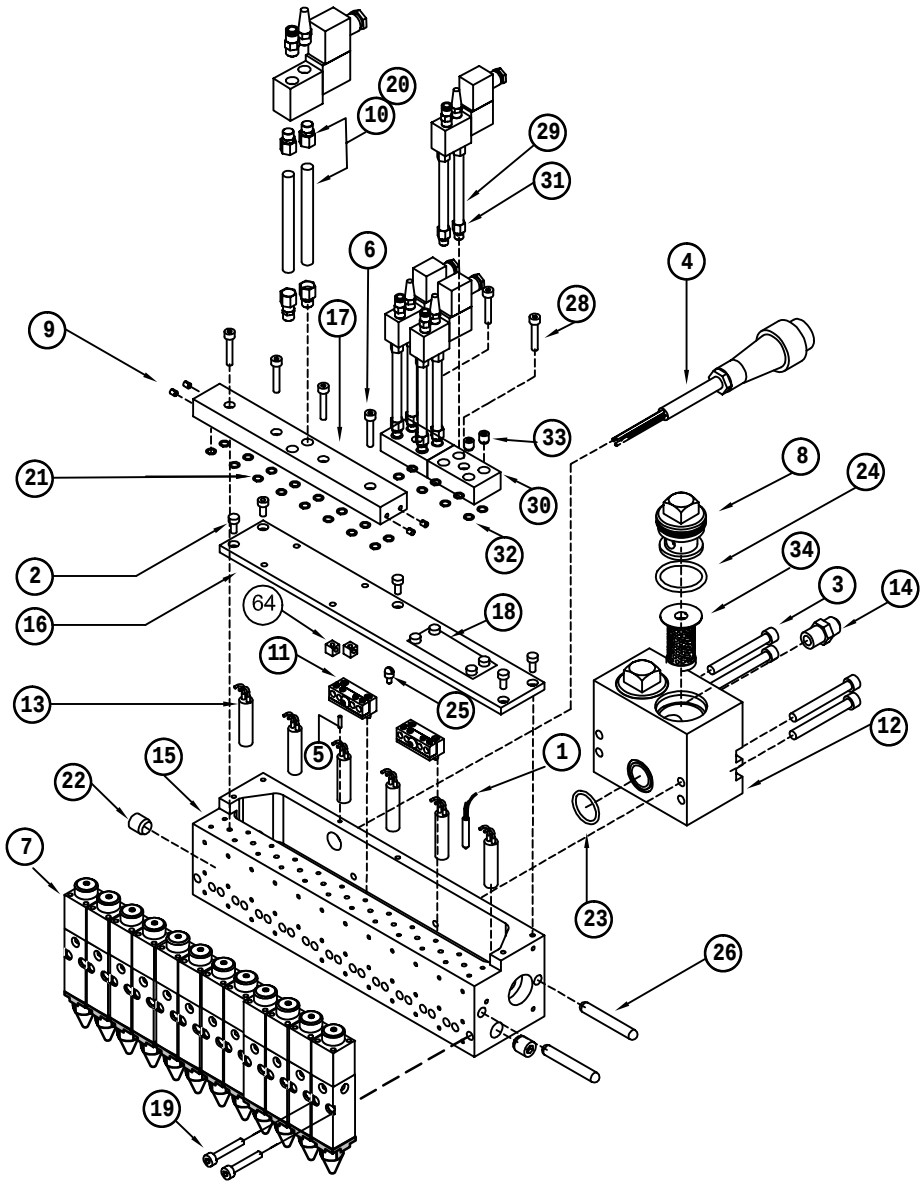
Item No.	Part Number	Description	Qty.
1	See Ordering Guide	Temperature Sensor	2
2	102446	M4-0.7 x 10 mm SHC Screw	5
3	102602	M6-1 x 60mm SHC Screw	4
4	See Ordering Guide	Cable Assembly, DCL	1
5	103470	M3-.5 x 5 mm Flat Point Set Screw	1
6	107531	M4 x 20mm SHC Screw	4
7	084B1388	MR1300, Spray Module (Shown For Ref. Only)	12
8	106303	Filter Nut	2
9	805294	Expansion Plug	4
10	106333	Stainless Steel Tube, 1/4 x .65w x 3.5lg	2
11	804493	Terminal Block Assembly	4
12	803327	Dual Hose Filter Block	1
13	See Ordering Guide	Heater, 10 x 40mm, 240v, 200w (w/wire end crimp 104228)	6
14	803984	Hose Fitting, #6JIC x 1/2-14 BSPP	1
15	804167	Adhesive Manifold	1
16	804203	Junction Cover plate	1
17	804169	Solenoid Manifold (Shown For ref. Only)	1
18	804477	Data Plate with M4-x 8mm FHC Screws (PN 106470)	1
19	804354	M5.8 x 30mm SHC screw	24
20	N00093	Compression Fitting	4
21	N00175	O-ring, -008	16
22	N00754	1/4 Level Seal Plug	2
23	N01010	O-ring, -021	1
24	N03812	O-ring, -125	2
25	N07354	M4-,7 x 10 mm	1
26	804356	Dowel Pin	2
27	**807329**	**Air Heater Assembly**	**1**
28	107430	O-ring, #-016 Kalrez	12
29	078C005	#8 Flat washer	4
30	102446	M4-4.7 x 10mm	7
31	See Ordering Guide	Cable Assembly, 240v, DCL	1
32	103470	M3-.5 x 5mm Flat point Set Screw	1
33	106327	4mm Expansion Plug	12
34	803083	M4-.7 x 34mm SHC Screw	4
35	See Ordering Guide	Temperature Sensor	1
36	803579	Spacer, .625 x .188 x .094	12
37	See Ordering Guide	Heater, 10 x 100mm, 240v, 220w	12
38	803979	Spiral Heater Tube	12
39	804039	Air Heater Body	1
40	804040	Air Manifold	1
41	804041	Junction Cover	1
42	805880	3/8 Expansion Plug	2
43	804355	M4.7 x 50mm SHC screw	12
44	A48J164	Shrink tube, 3/16 (Not Shown used in cable assembly)	1
45	100460	Compression Fitting	1
46	N00178	O-ring, #-011	12
47	N04268	Terminal Ring	1
48	N07354	M4-,7 x 10mm Pan Head Screw	1
49	N07540	Terminal Block, Ceramic	2
50	**804694**	**UFD Adapter Assembly (Shown For Ref. Only)**	**1**
51	107079	Adapter, MR1300 Spray Module	1
52	106242	M5 x 16mm SHC Screw	2
53	N00178	O-ring, -011	4
54	**804522**	**2 Solenoid Air Manifold Kit (Shown For Ref. Only)**	**2**
55	106071	M4 x 25mm SHC Screw	1
56	106333	Stainless Steel Tube	4
57	804518	2 Solenoid Air Manifold	1
58	N00093	Compression Fitting	4
59	N00175	O-ring, -008	4
60	N00753	1/8 Level Seal Plug (Used in case of Block-off Plate)	2
61	**804636**	**Module Block Off Assembly**	**1**
62	106367	Block-Off Plate	1
	N00178	O-ring, -011	4
63		**Accessories**	
	See Ordering Guide	Filter Basket	
64		Solenoid And Acessories	
	N07541	Terminal Block, Small	2



Component Illustration: Typical 12 Port , Equity UFD Head, MR1300 Spray Nozzle

B.O.M: Typical 12 Port , Equity Bead Head-807685, (MR1300 Bead Module Shown)

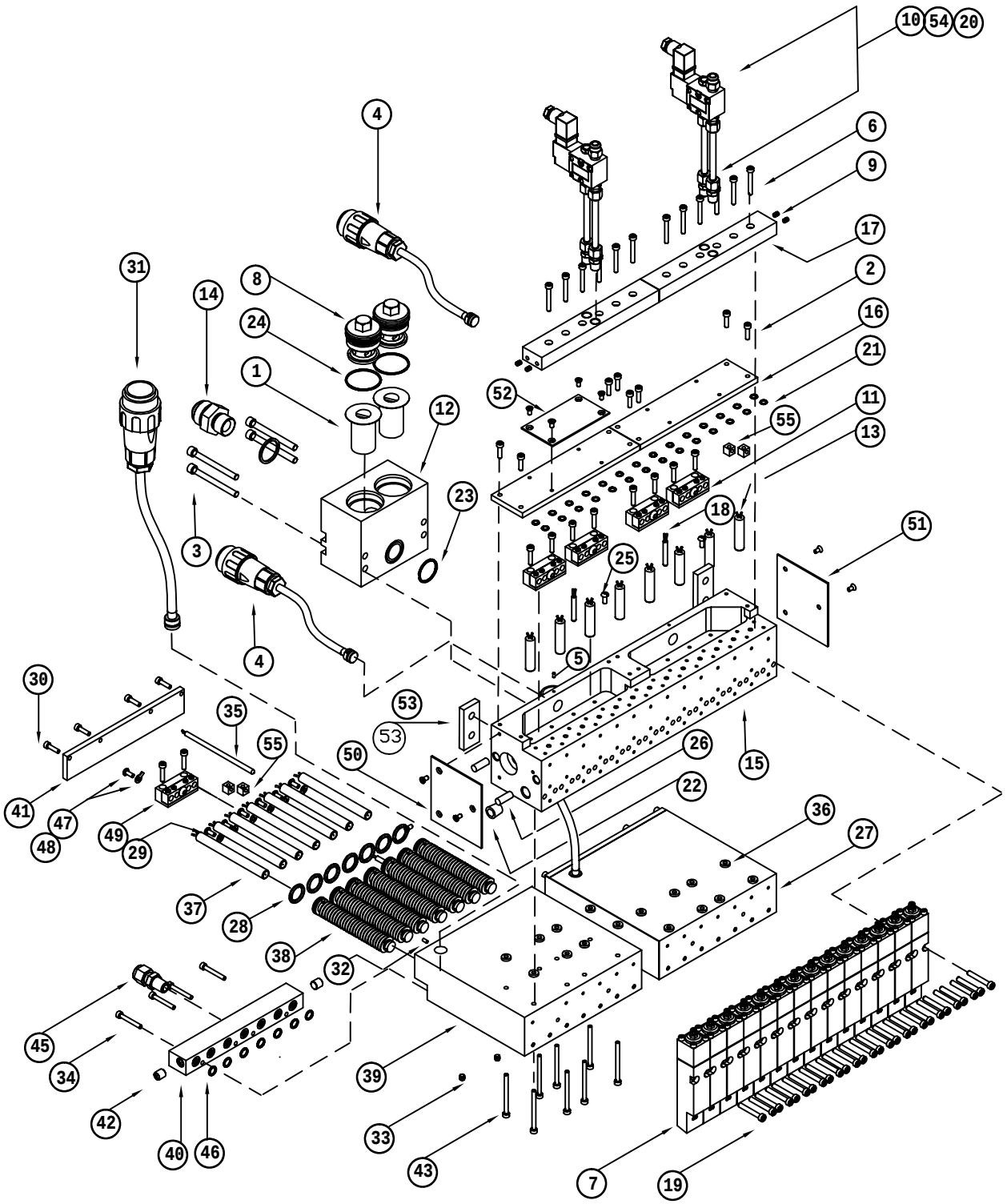
Item No.	Part Number	Description	Qty.
1	See Ordering Guide	Temperature Sensor	2
2	102446	M4-0.7 x 10 mm SHC Screw	5
3	102602	M6-1 x 60mm SHC Screw	4
4	See Ordering Guide	Cable Assembly, DCL	1
5	103470	M3-.5 x 5 mm Flat Point Set Screw	1
6	106071	M4 x 25mm SHC Screw	4
7	084B1328	MR1300, Bead Module (Shown For Ref. Only)	12
8	106303	Filter Nut	2
9	805294	Expansion Plug	4
10	106333	Stainless Steel Tube, 1/4 x .65w x 3.5lg	2
11	804493	Terminal Block Assembly	4
12	803327	Dual Hose Filter Block	1
13	See Ordering Guide	Heater, 10 x 40mm, 240v, 200w (w/wire end crimp 104228)	6
14	803984	Hose Fitting, #6JIC x 1/2-14 BSPP	1
15	804167	Adhesive Manifold	1
16	804203	Junction Cover plate	1
17	804169	Solenoid Manifold (Shown For ref. Only)	1
18	804477	Data Plate with M4-x 8mm FHC Screws (PN 106470)	1
19	804354	M5.8 x 30mm SHC screw	24
20	N00093	Compression Fitting	4
21	N00175	O-ring, -008	16
22	N00754	1/4 Level Seal Plug	2
23	N01010	O-ring, -021	1
24	N03812	O-ring, -125	2
25	N07354	M4-,7 x 10 mm	1
26	804356	Dowel Pin	2
27	**804522**	**2 Solenoid Air Manifold Kit (Shown For Ref. Only)**	**2**
28	106071	M4 x 25mm SHC Screw	1
29	106333	Stainless Steel Tube	4
30	804518	2 Solenoid Air Manifold	1
31	N00093	Compression Fitting	4
32	N00175	O-ring, -008	4
33	N00753	1/8 Level Seal Plug (Used in case of Block-off Plate)	2
		Accessories	
34	See Ordering Guide	Filter Basket	
		Solenoid And Acessories	
35	N07541	Terminal Block, Small	2



Component Illustration: Typical 12 Port , Equity Bead Head, MR1300 Bead Nozzle

B.O.M: Typical 14 Port , Equity UFD Head-807324, (Vertical Nozzle Shown)

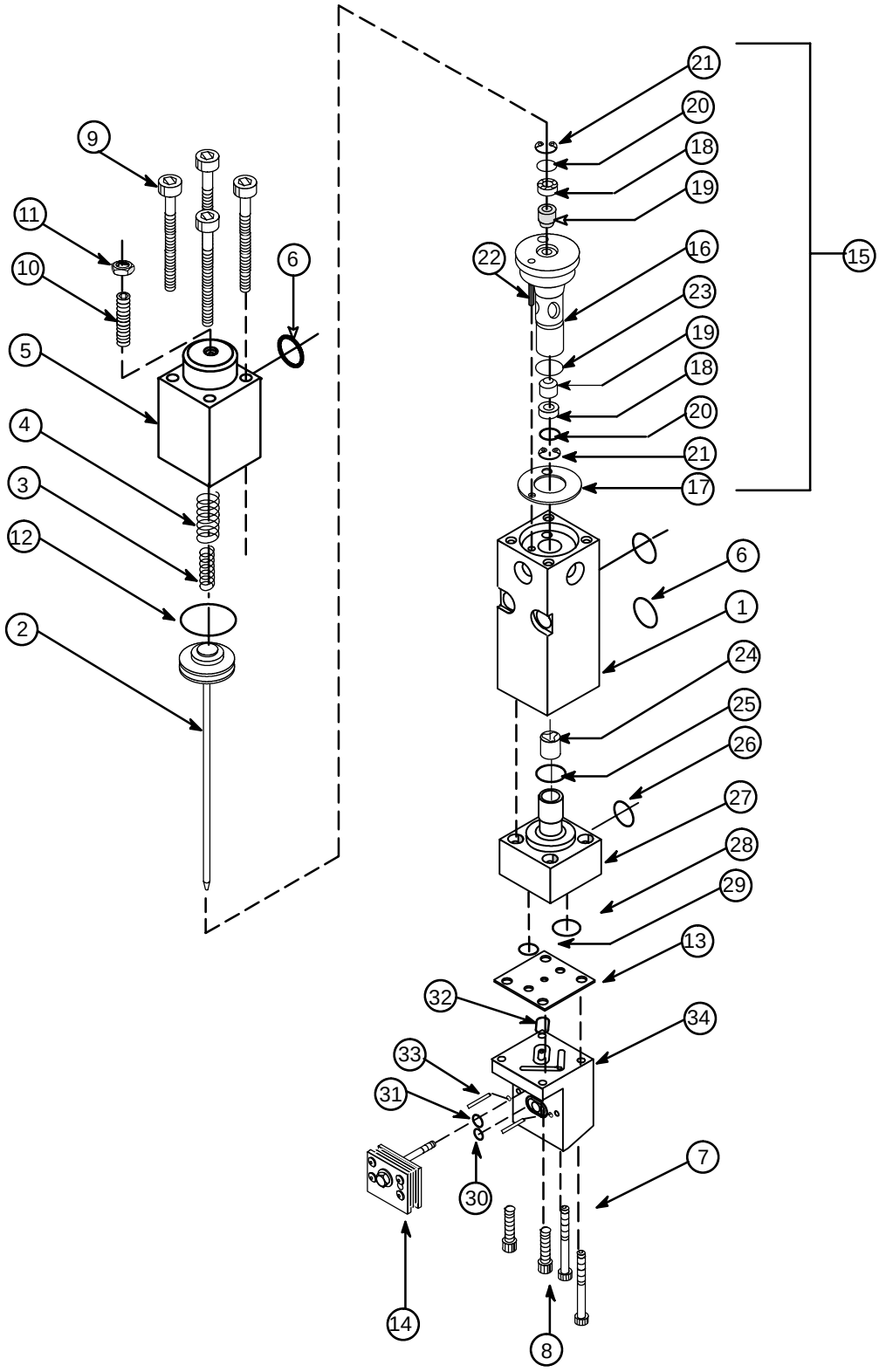
Item No.	Part Number	Description	Qty.
1	See Ordering Guide	Filter Basket	2
2	102446	M4-0.7 x 10 mm SHC Screw	5
3	102602	M6-1 x 60mm SHC Screw	4
4	See Ordering Guide	Cable Assembly, DCL	2
5	103470	M3-.5 x 5 mm Flat Point Set Screw	1
6	107531	M4 x 20mm SHC Screw	4
7	106224	MR1300, UFD, Vertical, Extended Noz. (Shown For Ref. Only)	14
8	106303	Filter Nut	2
9	805294	Expansion Plug	4
10	106333	Stainless Steel Tube, 1/4 x .65w x 3.5lg	2
11	804493	Terminal Block Assembly	2
12	803327	Dual Hose Filter Block	1
13	See Ordering Guide	Heater, 10 x 40mm, 240v, 200w	8
14	803984	Hose Fitting, #6JIC x 1/2-14 BSPP	1
15	804601	Adhesive Manifold	1
16	804598	Junction Cover plate	1
17	804599	Solenoid Manifold, 7 Port (Shown For Ref. Only)	2
18	See Ordering Guide	Temperature Sensor	1
19	804354	M5.8 x 30mm SHC screw	28
20	N00093	Compression Fitting	8
21	N00175	O-ring, -008	28
22	N00754	1/4 Level Seal Plug	2
23	N01010	O-ring, -021	1
24	N03812	O-ring, -125	2
25	N07354	M4-,7 x 10 mm	1
26	804356	Dowel Pin	2
27	**807325**	**Air Heater Assembly**	2
28	107430	O-ring, #-016 Kalrez	12
29	078C005	#8 Flat washer	5
30	102446	M4-4.7 x 10mm	10
31	See Ordering Guide	Cable Assembly, 240v, DCL	2
32	103470	M3-.5 x 5mm Flat point Set Screw	1
33	805880	Expansion Plug	7
34	803083	M4-.7 x 34mm SHC Screw	4
35	See Ordering Guide	Temperature Sensor	2
36	803579	Spacer, .625 x .188 x .094	7
37	See Ordering Guide	Heater, 10 x 100mm, 240v, 220w	7
38	803979	Spiral Heater Tube	7
39	804602	Air Heater Body	1
40	804605	Air Manifold	1
41	804603	Junction Cover	1
42	804335	10mm Expansion Plug	2
43	804355	M4.7 x 50mm SHC screw	7
44	A48J164	Shrink tube, 3/16 (Not Shown used in cable assembly)	1
45	100460	Compression Fitting	1
46	N00178	O-ring, #-011	8
47	N04268	Terminal Ring	1
48	N07354	M4-,7 x 10mm Pan Head Screw	1
49	N07540	Terminal Block, Ceramic	2
50	804373	Cover End (Option)	1
51	804372	Cover End (option)	1
52	804477	Data Plate (with M4-7 x 8mm FHC Screw PN 106470)	
53	804466	Insulator	2
54		Solenoid & Accessories (See your order for part number)	1
55	N07541	Terminal Block Small	4



Component Illustration: Typical 14 Port , Equity UFD Head, Verticle UFD Module

Bill Of Material for PN 106224 UFD Spray Module Assembly, Vertical, Extended

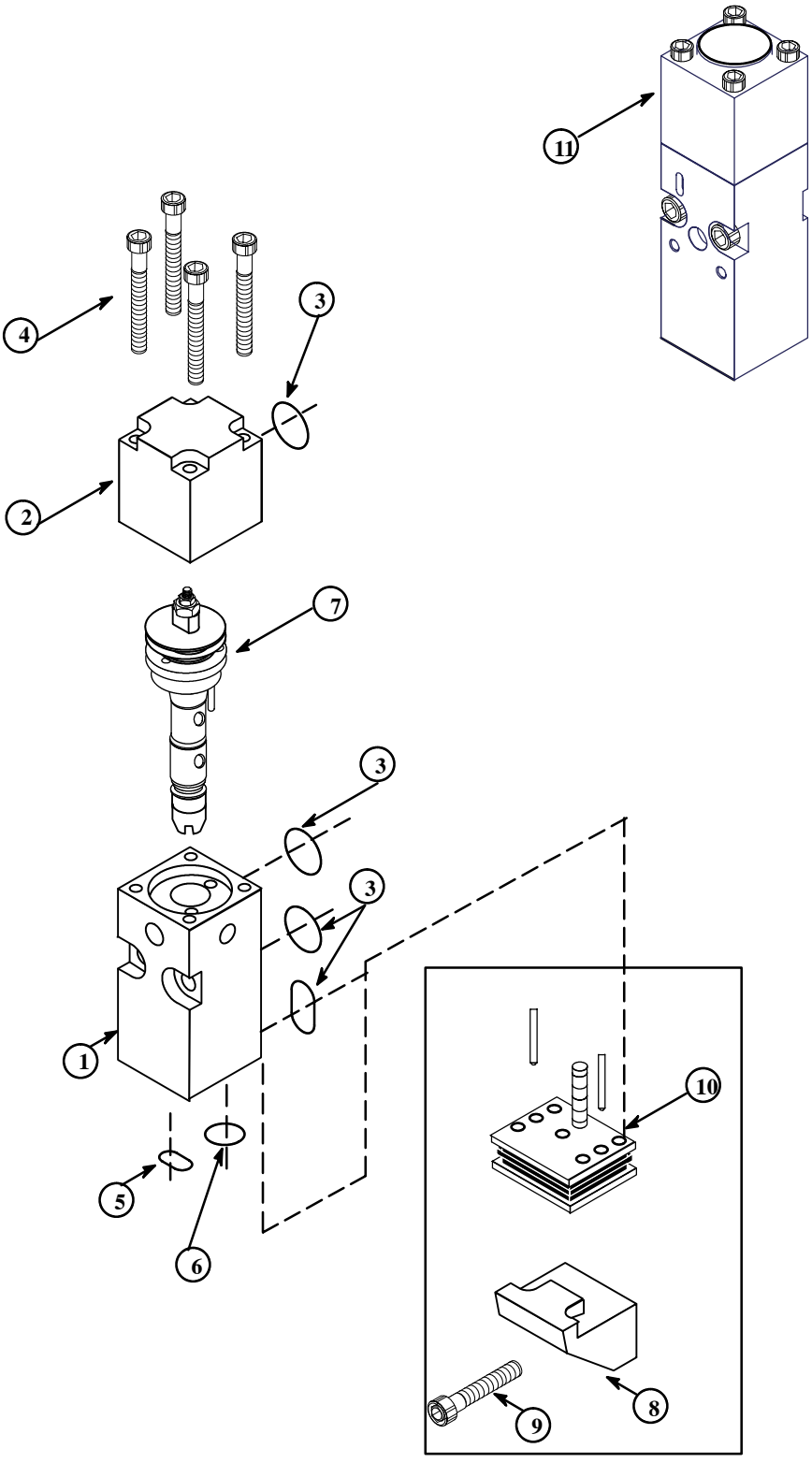
Item No.	Part Number	Description	Qty.
1	110791	Body Module	1
2	057C084	Stem Assembly	1
3	057E409	Compression Spring, Inner	1
4	057E410	Compression Spring, Outer	1
5	057F139	Air Cylinder	1
6	N00178	O-Ring, #011	3
7	104990	6-32 x 1 3/4 SHC Screw	2
8	N00795	6-32 x 1 SHC Screw	2
9	078A373	6-32 x 1 1/4 SHCS	4
10	078A384	10-32 x 3/4 SHSS	1
11	078D078	10-32 Sealing Hex Nut	1
12	N00198	O-Ring, #113	1
13	104987	Gasket	1
14		Nozzle (See your order for Part Number)	1
15	**084B1361**	**Seal Cartridge Assembly**	1
16	057E429	Seal Cartridge	1
17	057I260	Seal Cartridge Gasket	1
18	069X197	Stem Seal	2
19	069X198	Seal Backup	2
20	078C085	Washer, .25 x .16 x .04	2
21	078F034	Retaining Ring	2
22	078G028	Roll Pin	1
23	N00176	O-Ring, #009	1
	104989	**Seat Adapter Assembly**	**1**
24	057B1478	Valve Seat	1
25	N05044	O-Ring, #109	1
26	N00178	O-Ring, #011	1
27	104992	Seat Adapter	1
28	N00174	O-ring, #007	1
29	N00176	O-ring, #009	1
	106222	**Vertical Adapter Assembly**	**1**
30	N00174	O-ring, #-007	1
31	N00176	O-ring, #-009	1
32	N00178	O-ring, #-011	1
33	078G028	1/16 Dia. x 3/8 Long Roll Pin	2
34	106221	Vertical Adapter	1



Component Illustration: PN 106224 UFD Spray Module Assembly, Vertical, Extended

Bill Of Material For PN 110558 MR1300 Snuffback UFD Module Assembly

Item No.	Part Number	Description	Qty.
1	110408	Valve Body	1
2	110409	Air Cylinder	1
3	N00178	O-Ring, #011	4
4	106951	M3x35mm SHCS	4
5	N00174	O-ring, #007	1
6	N00176	O-ring, #009	1
7	**110410**	**Seal Cartridge Assembly**	1
	Following parts are part of the head assembly. They are shown here for reference		
8	106471	Nozzle Insulator (1 per module)	
9	106328	M4-0.7 x 16mm SHC Screw (1 per module)	
10		Nozzle (See your Order for part Number)	1
	Note:		
11	110840	Optional Intermittent Replacement Module	1

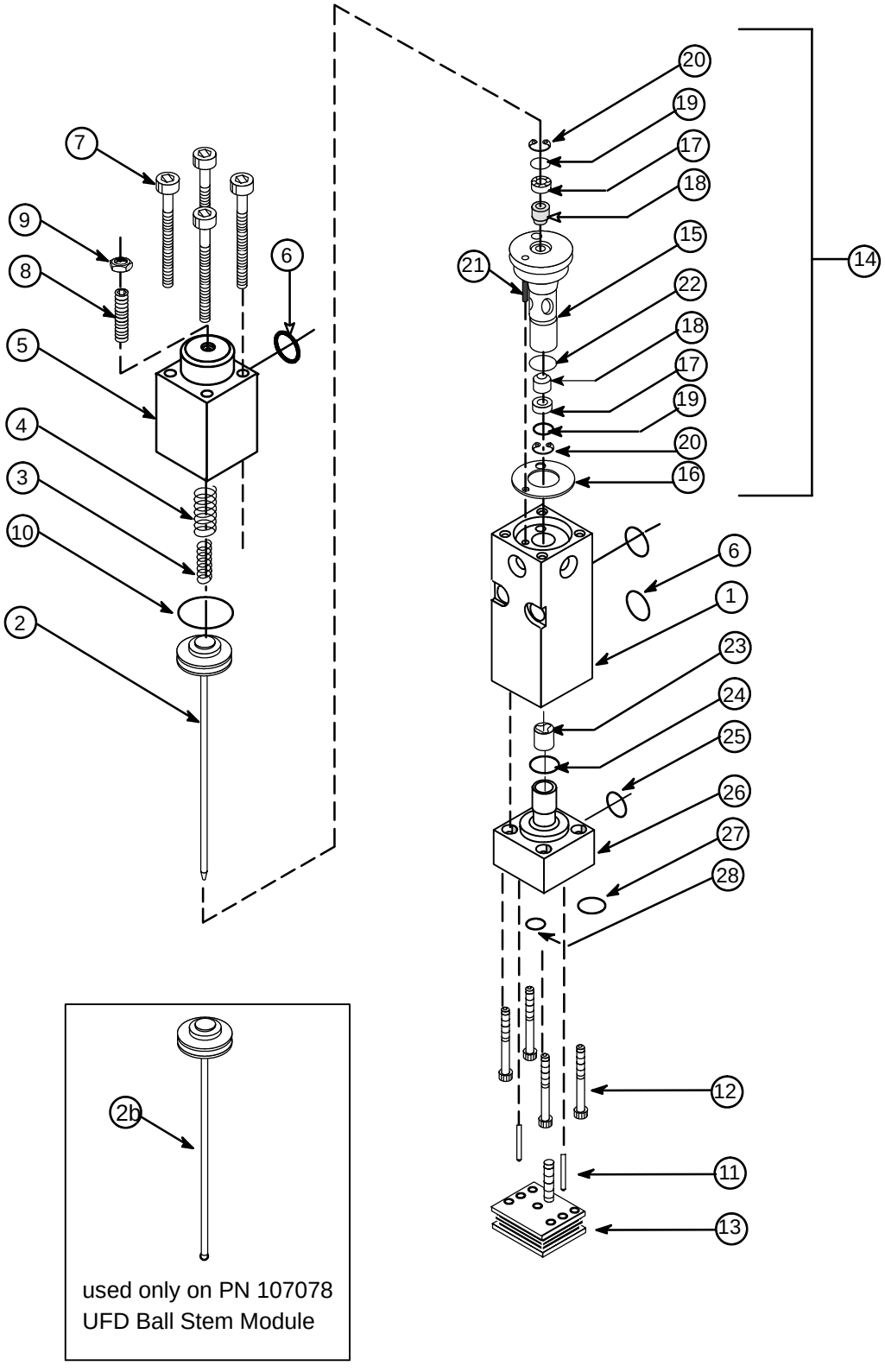


Component Illustration: PN110558 MR1300 Snuffback UFD Module Assembly

Bill Of Material for PN 104993 UFD Spray Module Assembly, Horizontal and PN 107078 UFD Ball Stem Module Assembly, Horizontal

Item No.	Part Number	Description	Qty.
1	110791	Body Module	1
2	057C084	Stem Assembly (used on PN 104993 Module)	1
2b	107178	Ball Stem Assembly (used on PN 107078 Module)	1
3	057E409	Compression Spring, Inner	1
4	057E410	Compression Spring, Outer	1
5	057F139	Air Cylinder	1
6	N00178	O-Ring, #011	3
7	078A373	6-32 x 1 1/4 SHCS	4
8	078A384	10-32 x 3/4 SHSS	1
9	078D078	10-32 Sealing Hex Nut	1
10	N00198	O-Ring, #113	1
11	078G028	1/16 Dia. x 3/8 Long Roll Pin	2
12	N00794	6-32 x 3/4 SHC Screw	4
13		Nozzle (See your Order for Part Number)	1
14	**084B1361**	**Seal Cartridge Assembly**	1
15	057E429	Seal Cartridge	1
16	057I260	Seal Cartridge Gasket	1
17	069X197	Stem Seal	2
18	069X198	Seal Backup	2
19	078C085	Washer, .25 x .16 x .04	2
20	078F034	Retaining Ring	2
21	078G028	Roll Pin	1
22	N00176	O-Ring, #009	1
	104989	**Spray Nozzle Adapter Assembly**	**1**
23	057B1478	Valve Seat	1
24	N05044	O-Ring, #109	1
25	N00178	O-Ring, #011	1
26	104992	Seat Adapter	1
27	N00174	O-ring, #007	2
28	N00176	O-ring, #009	2

Important: *P/N 104989 must be ordered as an assembly. Do not buy individual components separately.*

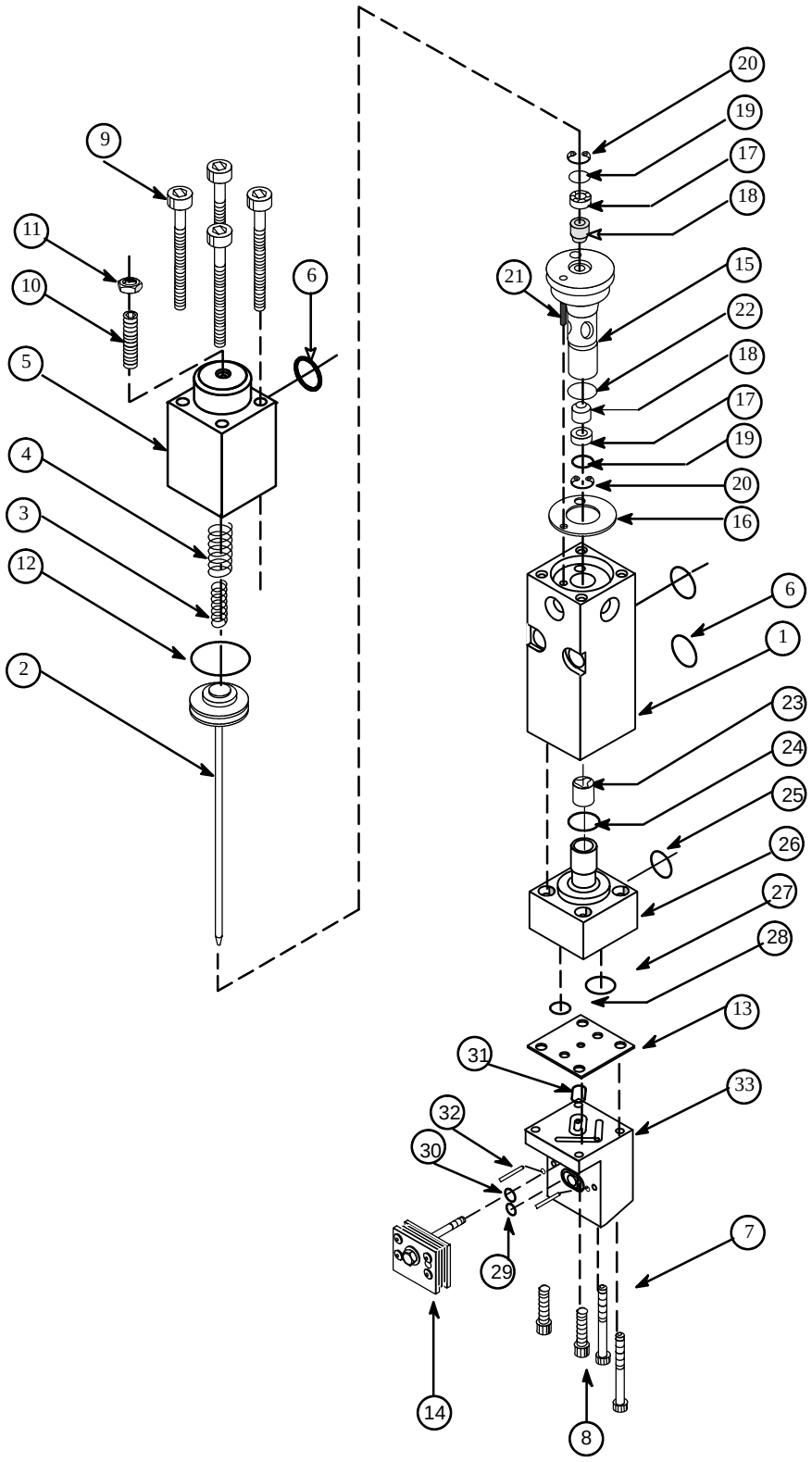


Component Illustration: PN 104993 UFD Spray Module Assembly, Horizontal and PN 107078 Ball Stem Module Assembly, Horizontal

B.O.M: UFD Spray Module Assembly, High Temp., Extended, Vertical, PN#106226

Item No.	Part Number	Description	Qty.
1	057A358	Body Module	1
2	057C084	Stem Assembly	1
3	057E409	Compression Spring, Inner	1
4	057E410	Compression Spring, Outer	1
5	057F139	Air Cylinder	1
6	N07079	O-Ring, #011, Kalrez	3
7	078A184	6-32 x 2 SHC Screw	2
8	N00795	6-32 x 1 SHC Screw	2
9	078A373	6-32 x 1 1/4 SHCS	4
10	078A384	10-32 x 3/4 SHSS	1
11	078D078	10-32 Sealing Hex Nut	1
12	069X222	O-Ring, #113, Hi–Temp	1
13	104987	Gasket	1
14		Nozzle (See your order for part Number)	1
	084B1457	**Seal Cartridge Assembly**	1
15	057E429	Seal Cartridge	1
16	057I260	Seal Cartridge Gasket	1
17	069X197	Stem Seal	2
18	069X198	Seal Backup	2
19	078C085	Washer, .25 x .16 x .04	2
20	078F034	Retaining Ring	2
21	078G028	Roll Pin	1
22	069X220	O-Ring, #009, Hi–Temp	1
	105749	**Seat Adapter Assembly**	**1**
23	057B1478	Valve Seat	1
24	069X206	O-Ring, #109, Hi–Temp	1
25	N07079	O-Ring, #011, Hi–Temp	1
26	104992	Seat Adapter	1
27	802042	O-ring, #007, Kalrez	1
28	069X220	O-ring, #009, Kalrez	1
	106223	**Vertical Adapter Assembly**	**1**
29	802042	O-ring, #-007, Hi–Temp	1
30	069X220	O-ring, #-009, Hi–Temp	1
31	N07079	O-ring, #-011, Hi–Temp	1
32	078G028	1/16 Dia. x 3/8 Long Roll Pin	2
33	106221	Vertical Adapter	1

Important: P/N 105749 & 106223 must be re-ordered as an assembly. Do not buy individual components separately.

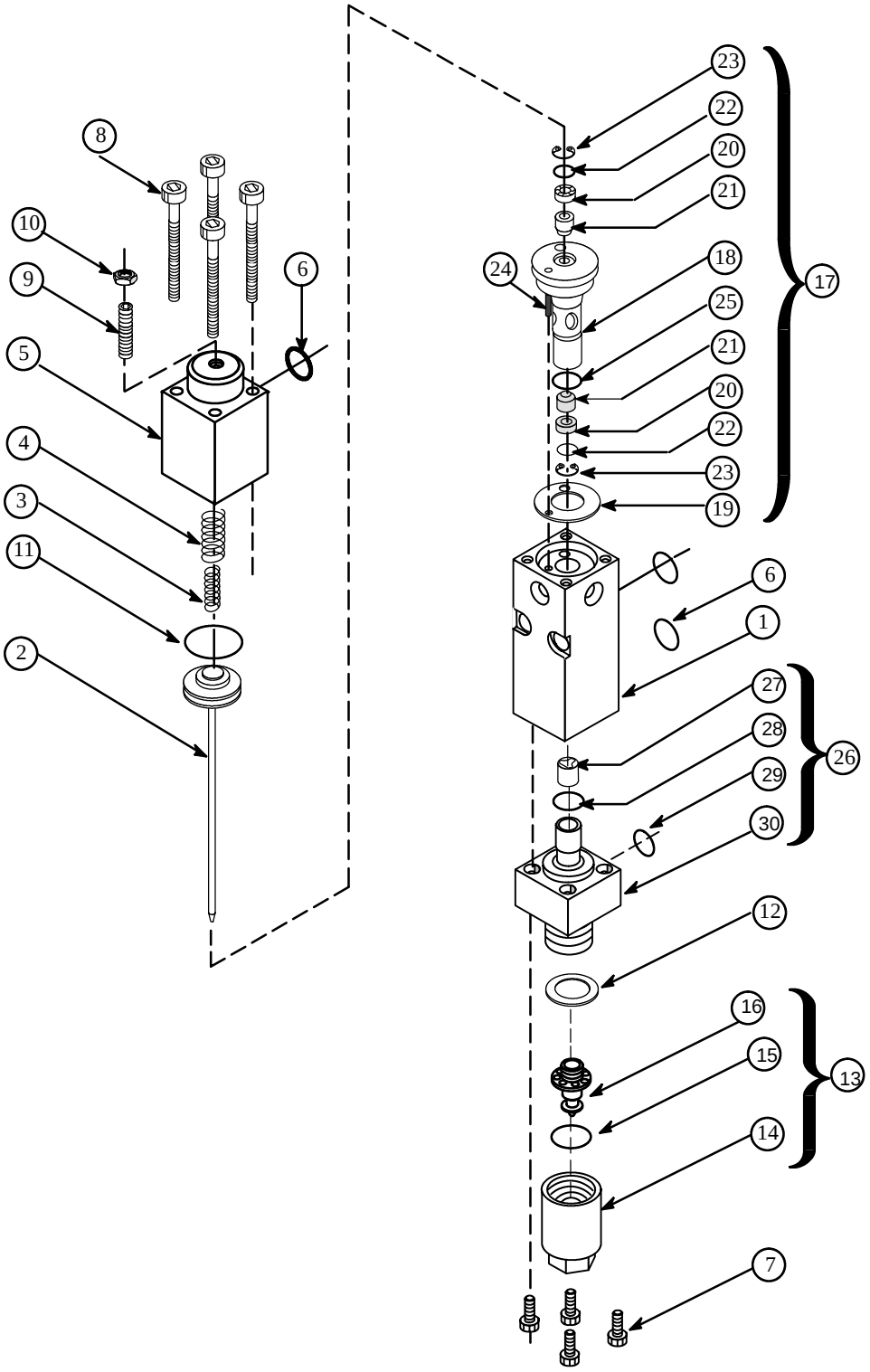


Component Illustration: UFD Spray Module Assembly, High Temp., Extended, Vertical PN#106226

Component Illustration: Spray Module Assembly PN# 084B1388

Item No.	Part Number	Description	Qty.
1	057A358	Body Module	1
2	057C084	Stem Assembly	1
3	057E409	Compression Spring, Inner	1
4	057E410	Compression Spring, Outer	1
5	057F139	Air Cylinder	1
6	N00178	O-Ring, #011	3
7	N00793	6-32 x 5/8 SHCS	4
8	078A373	6-32 x 1 1/4 SHCS	4
9	078A384	10-32 x 3/4 SHSS	1
10	078D078	10-32 Sealing Hex Nut	1
11	N00198	O-Ring, #113	1
12	078C107	Aluminum Washer (Soft)	1
13	**057B1661**	**Spray Nozzle Cap**	**1**
14	101456	Cap, Spray Nozzle	1
15	N00177	O-ring, #-010	1
16	A Series	Nozzle, Purchased Saparately, See Nozzle Chart	1
17	**084B1361**	**Seal Cartridge Assembly**	1
18	057E429	Seal Cartridge	1
19	057I260	Seal Cartridge Gasket	1
20	069X197	Stem Seal	2
21	069X198	Seal Backup	2
22	078C085	Washer, .25 x .16 x .04	2
23	078F034	Retaining Ring	2
24	078G028	Roll Pin	1
25	N00176	O-Ring, #009	1
26	**084B1555**	**Spray Nozzle Adapter Assembly**	**1**
27	057B1478	Valve Seat	1
28	N05044	O-Ring, #109	1
29	N00175	O-Ring, #008	1
30	057B1628	Spray Nozzle Adapter	1

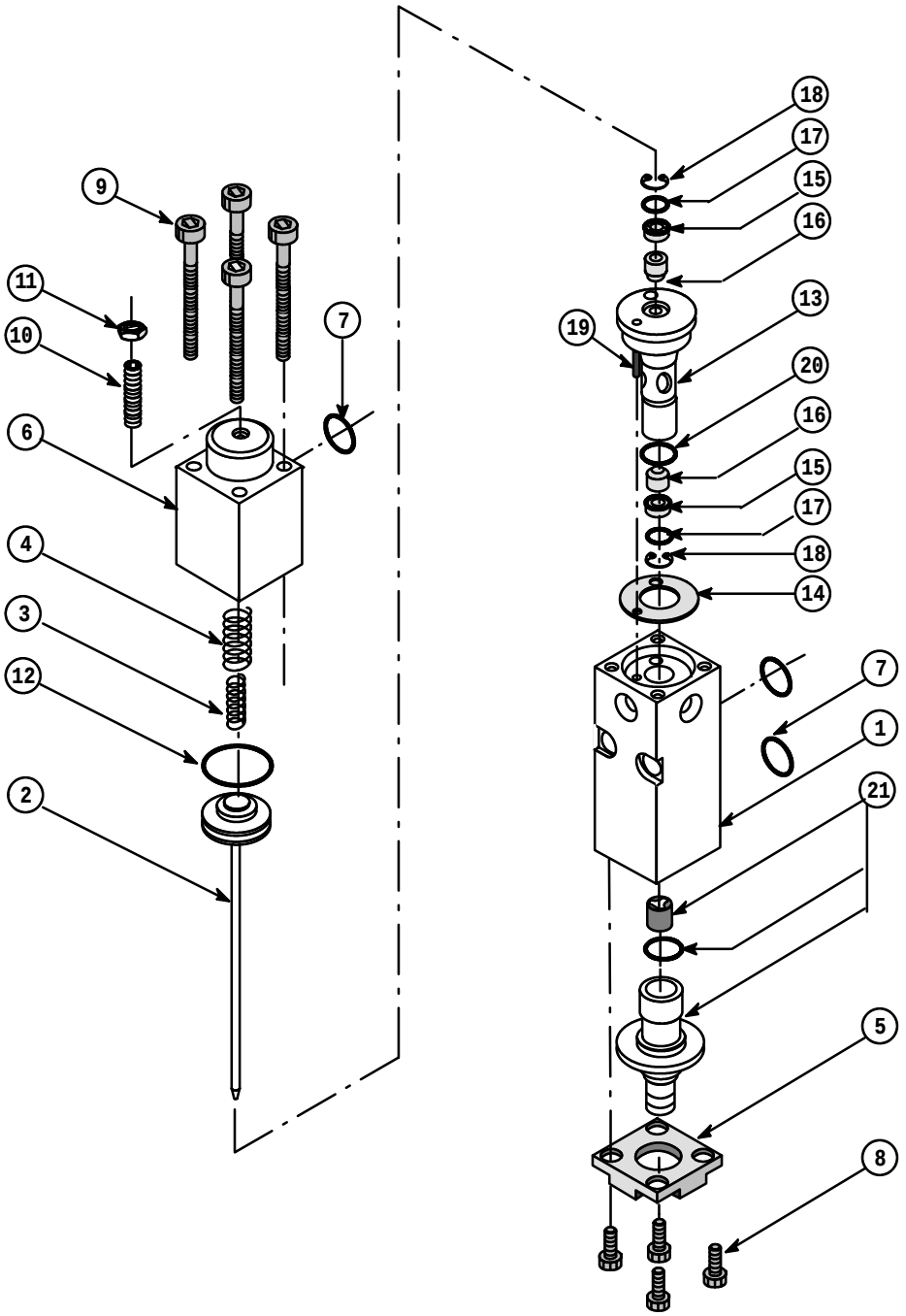
Important: P/N 084B1555 must be re-ordered as an assembly. Do not buy individual components separately.



Component Illustration: Spray Module Assembly PN# 084B1388

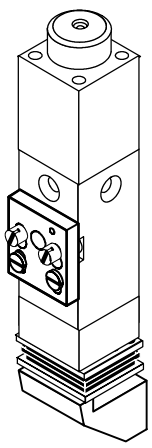
Bead Module Assembly PN# 084B1328

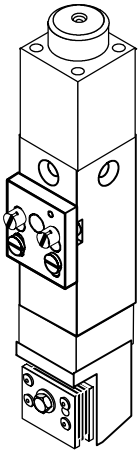
Item No.	Part Number	Description	Qty.
1	057A358	Module Body	1
2	057C084	Stem Assembly	1
3	057E409	Compression Spring, Inner	1
4	057E410	Compression Spring, Outer	1
5	057E430	Retainer Plate	1
6	057F139	Air Cylinder	1
7	N00178	O-ring, #011	3
8	078A314	6-32 x 1/2 BHSCS	4
9	078A373	6-32 x 1 1/4 SHCS	4
10	078A384	10-32 x 3/4 SHSS (SS)	1
11	078D078	10—32 Sealing Hex Nut	1
12	N00198	O-ring, #113	1
	084B1361	**Seal Cartridge Assembly, consisting of:**	**1**
13	057E429	Seal Cartridge	1
14	057I260	Gasket, Seal Cartridge	1
15	069X197	Stem seal	2
16	069X198	Seal Backup	2
17	078C085	Plain Washer, #4	2
18	078F034	Retaining Ring	2
19	078G028	Roll Pin	1
20	N00176	O-ring, #009	1
21	**084B1329**	**Nozzle Adapter Assembly, consisting of:**	**1**
	057B1478	Valve Seat	1
	N05044	O-ring, #109	1
	084B1580	Nozzle Adapter	1

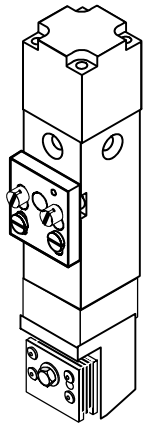


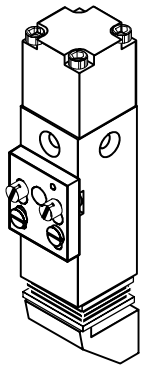
Bead Module Assembly PN# 084B1328

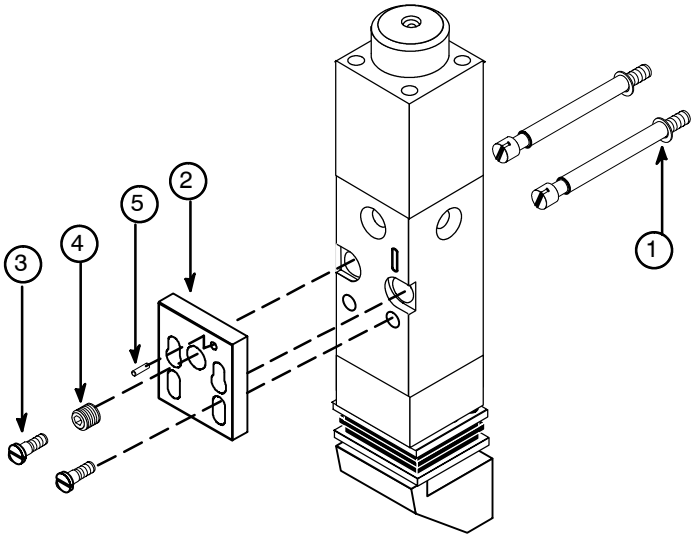
	UFD Horz.	UFD Vert.	UFD SB Vert.	UFD SB Horiz.
Standard Module	104993	106244	111074	111840
Quick Change (w/ Pins)	108834	108833	111175	111174
Quick Change (No Pins)	108173	108174	111173	111172



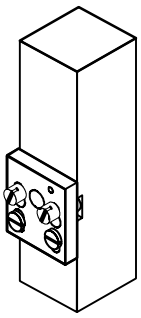






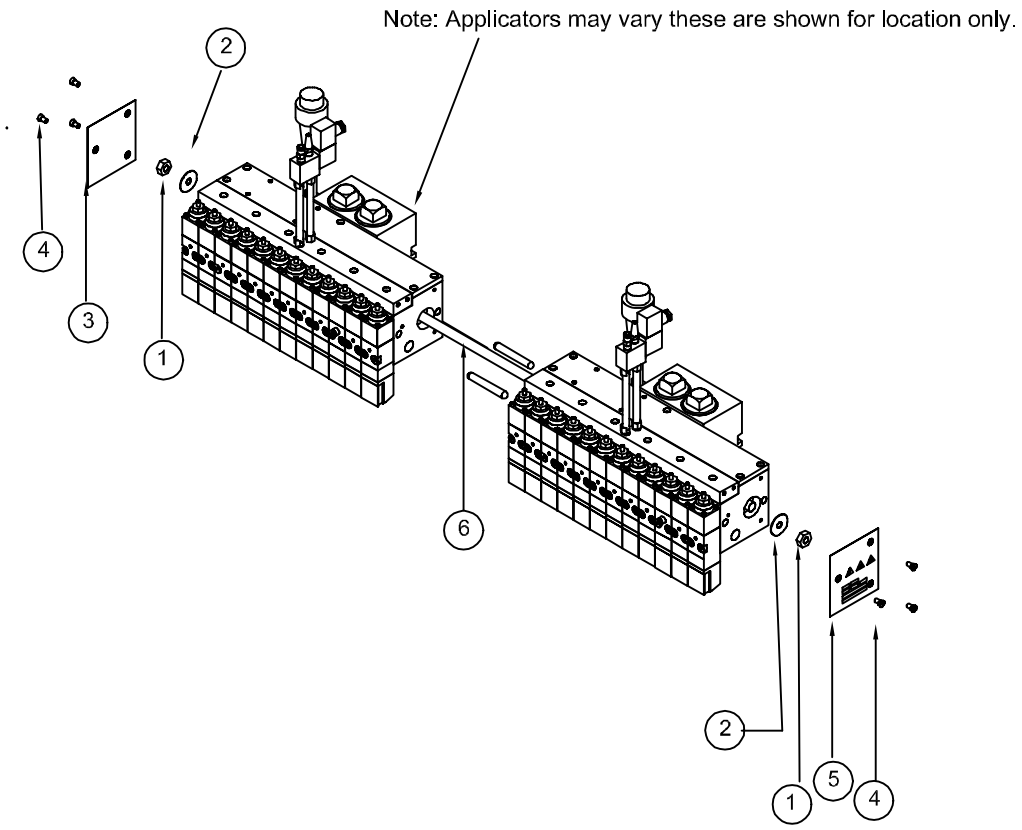


	Block-off
Standard Module	805002
Quick Change (w/ Pins)	108860
Quick Change (No Pins)	108859
Horizontal Air Only	111052
Vertical Air Only	111053



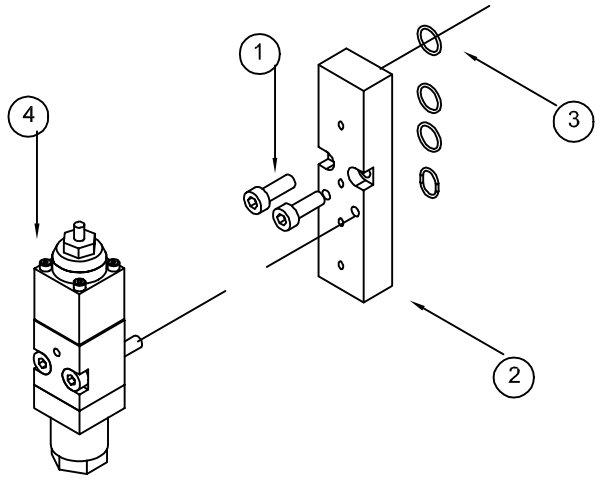
Quick Change Kit (w/Pins) - For PN 108198
Quick Change Kit (No Pins) - For PN 108861

Item No.	Part Number	Description	Qty.
1	108166	Pin, Guide, MR1300UFD	2
2	108167	Clamp Plate	1
3	108170	M3 x 4 x 5mm Shoulder Screw	2
4	108169	M6 x 6mm SHS Screw	1
5	108168	Dowel Pin, 2mm x 6mm	1



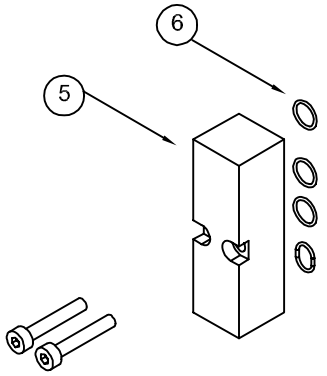
Joining Kit - 804375

Item No.	Part Number	Description	Qty.
	804375	Joining Kit	1
1	804376	10mm Jam nut	2
2	078C141	3/8 flat washer	2
3	804373	LH Side Cover	1
4	106470	M4 x 8mm Flat Head Screw	6
5	804372	RH data Plate	1
6	804377	All Thread Rod (length varies per application)	1



UFD Spray Adapter Kit Assembly - 804694

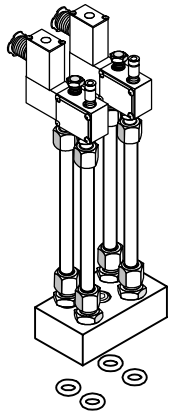
Item No.	Part Number	Description	Qty.
	804694	UFD Spray Adapter Kit	1
1	106242	M5 x 16 SHC Screw	2
2	107079	UFD MK2 Spiral Spray Adapter	1
3	N00178	O-ring, -011	4
4	084B1388	MR1300 Spray module (shown for ref. only not part of this assembly)	1



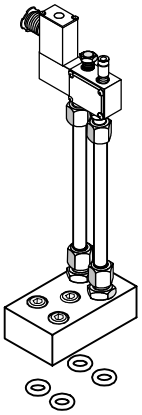
Module Block-off Assembly - 805002

Item No.	Part Number	Description	Qty.
	805003	Block -Off Assembly	1
5	803570	Block-off Plate	1
6	N00178	O-ring, -011	4

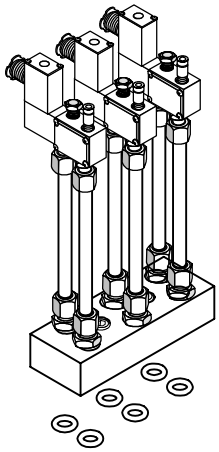
Air Manifold Configurations:



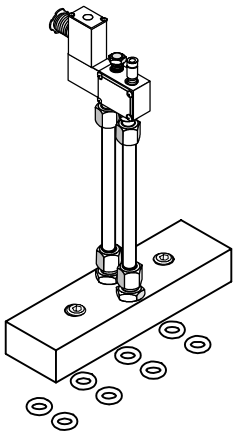
804522:
2 Port, 2 Program



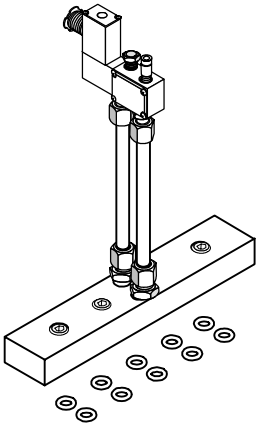
807316:
2 Port, 1 Program



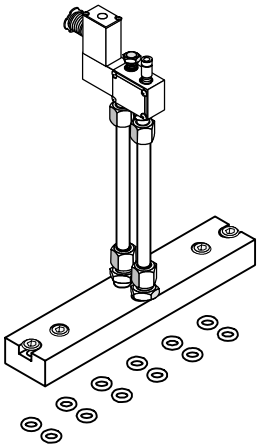
806318:
3 Port, 3 Program



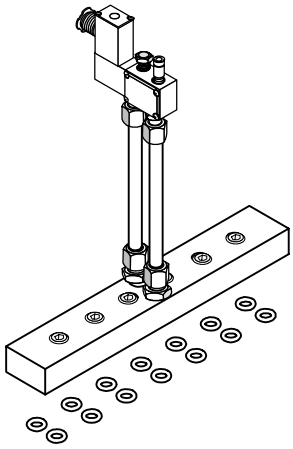
804525 / 804516:
4 Port, 1 Program



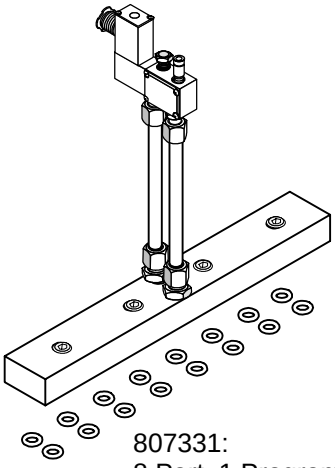
809413:
5 Port, 1 Program



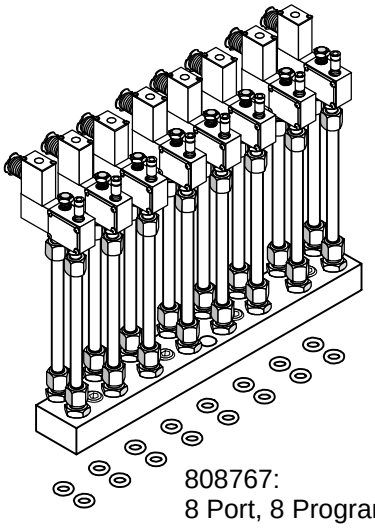
807318:
6 Port, 1 Program



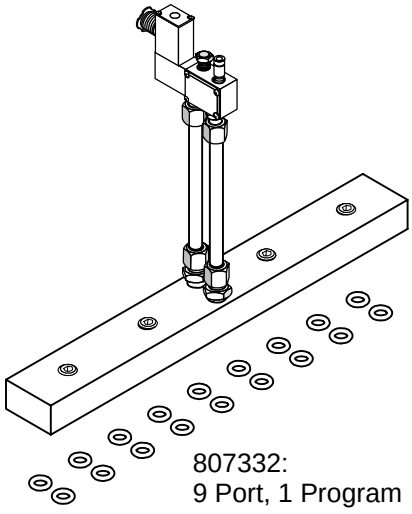
807330:
7 Port, 1 Program



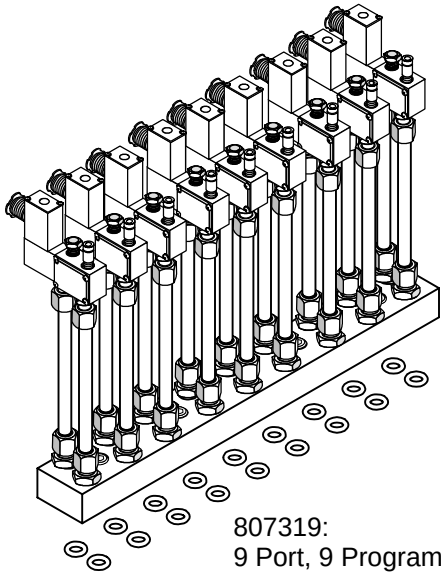
807331:
8 Port, 1 Program



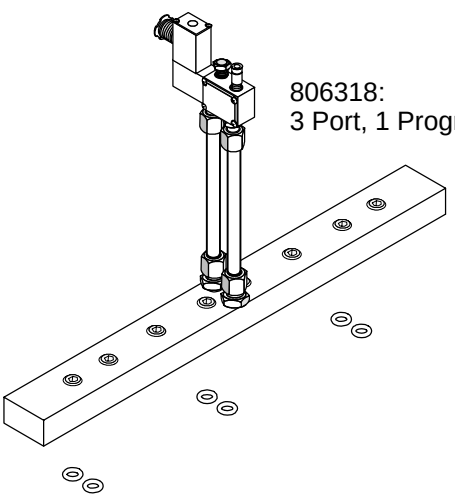
808767:
8 Port, 8 Program



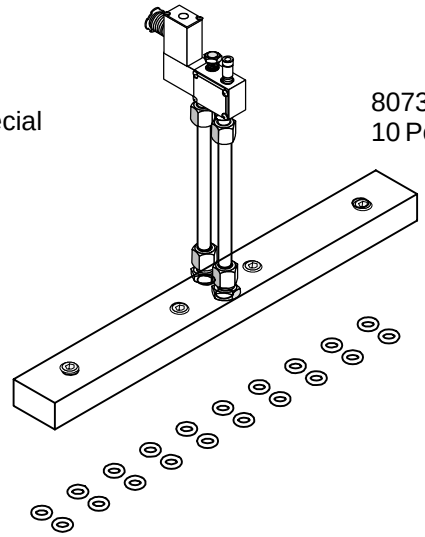
807332:
9 Port, 1 Program



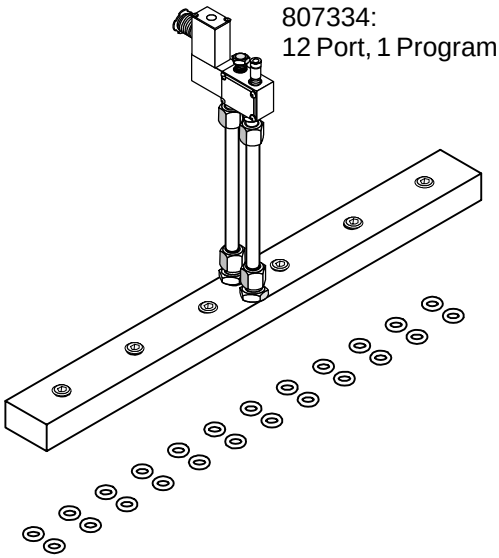
807319:
9 Port, 9 Program



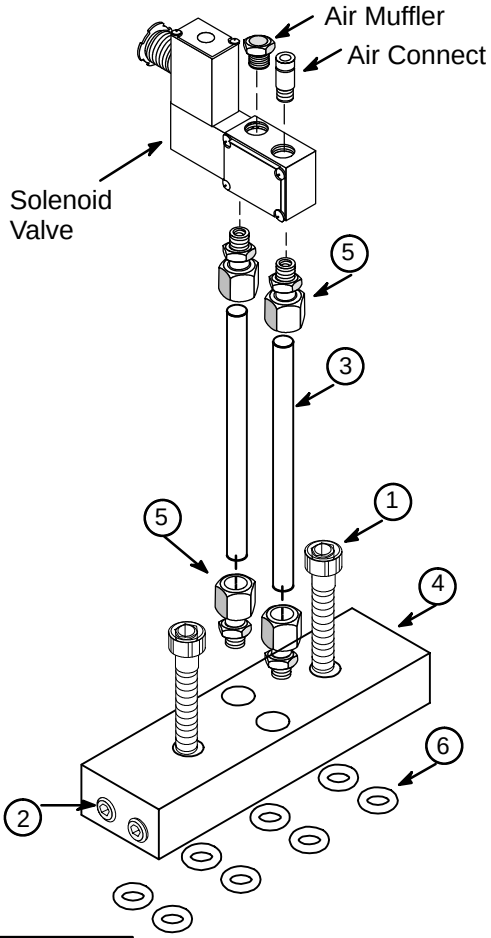
806318:
3 Port, 1 Program Special



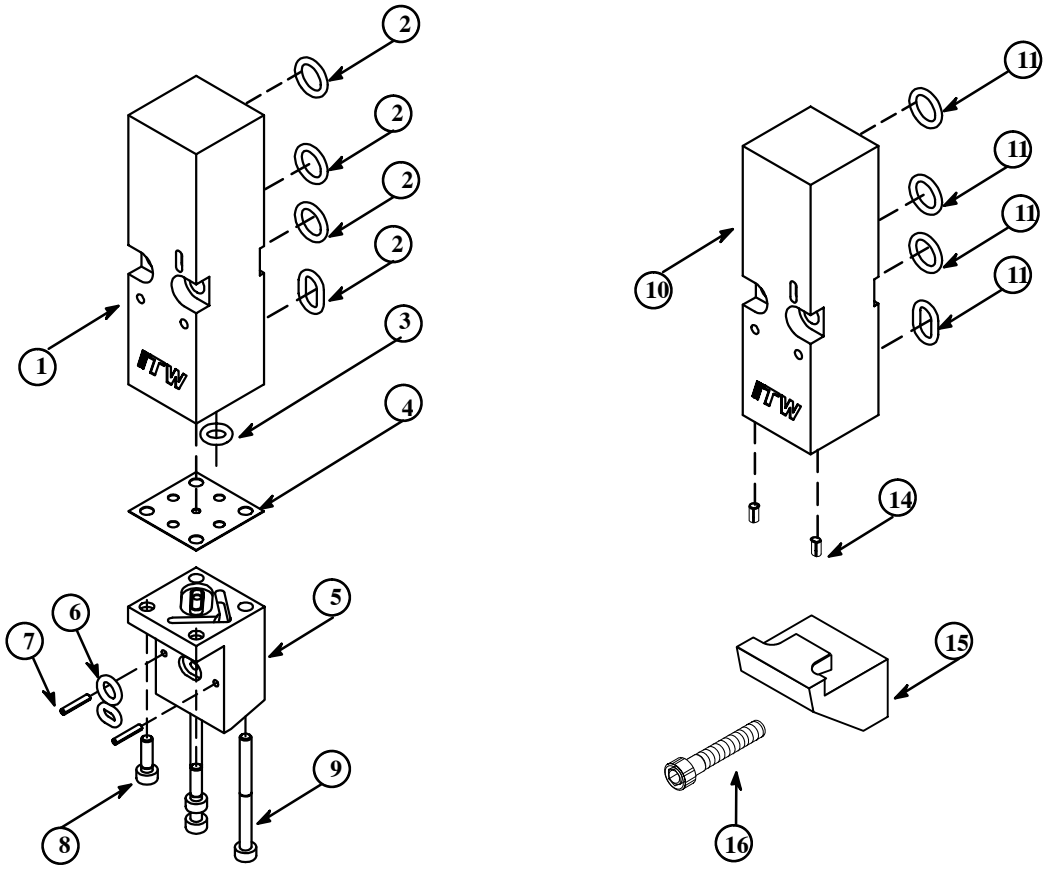
807333:
10 Port, 1 Program Special



807334:
12 Port, 1 Program Special



Item No.	Part Number	Description
1	106071	M4 x 25mm SHC Screw
2	106327	4mm Expansion Plug
3	106333	1/4 x .065w x 3.5 Stainless Steel Tube
4	See Config.	Air Manifold
5	N00093	1/4 tube x 1/8 NPT Connector Fitting
6	N00175	O-ring, -008



Module Blank, Vertical Air Only - PN 111053

Item No.	Part Number	Description	Qty.
1	111051	Module Body, Air Only	1
2	N00178	O-ring, -011	4
3	N00176	O-ring, -009	2
4	104987	Vertical Adapter Seal	1
5	106221	Vertical Adapter	1
6	N00174	O-ring, -007	1
7	078G028	Spring Pin, 1/16 x 3/8	2
8	103404	SHC Screw M3 x 10mm	2
9	106951	SHC Screw M3 x 35mm	2

Module Blank, Horizontal Air Only - PN 111052

Item No.	Part Number	Description	Qty.
11	111051	Module Body, Air Only	1
12	N00178	O-ring, -011	4
13	N00176	O-ring, -009	2
14	078G028	Spring Pin, 1/16 x 3/8	2
	Following parts are part of the head assembly. They are shown here for reference		
15	106471	Nozzle Insulator (1 per module)	
16	106328	M4-0.7 x 16mm SHC Screw (1 per module)	

Chapter 7
ORDERING GUIDES

Heater Cartridges

Note: Spiral Spray Applicators use the same heaters as listed below.

Applicator	Part No.	Description	Location	Qty. Heaters	
				Ser. Bl.	Air Pre.
6-port segment	803960	10x40mm, 200w	service block	4	6
8-port segment				4	8
9-port segment	803905	10x100mm, 220w	air preheater	4	9
10-port segment				6	10
12-port segment	803960	10x40mm, 200w	service block	6	- -
12-port segment	802989	10x100mm, 200w	air preheater	- -	12
14-port segment	803960	10x40mm, 200w	service block	8	- -
14-port segment	803905	10x100mm, 220w	air preheater	- -	14

RTD Sensors & Thermocouples

Note: Spiral Spray Applicators use the same sensors as listed below.

Control Scheme	Part No.	Description	Location	Qty.
DynaControl/ PLC/ MCV	N06703	Pt100	service block	1
DynaControl/ PLC/ MCV	803386	Pt100	air preheater	1
Upgrade (Ni RTD)	N07864	N120	service block	1
Upgrade (Ni RTD)	N07864	N120	air preheater	1
Upgrade (J-type TC)	036D006	J-type TC	service block	1
Upgrade (J-type TC)	036D006	J-type TC	air preheater	1

Filters

see applicator model number for factory installed filter (pg. 6-1)

Filter Code	Filter Part No.	Description
A	101247	Filter Basket, 100 mesh
B	106273	Filter Basket, 150 mesh

Service Kits

Spray or Bead Module Rebuild Kit PN 084B1378
Hi-Temp Spray Module Rebuild Kit PN 106516
UFD Module Rebuild Kit PN 105150
UFD Hi-Temp Module Rebuild Kit PN 803012
UFD Snuffback Module Renew Kit PN 107285 (for modules built in 2003 or earlier, codes A, B, C) or
UFD Snuffback Module Renew Kit PN 110428 (for modules built in 2003 or later, code D)
The module rebuild kits contain all the parts necessary to rebuild one spiral spray or UFD module. Note: To determine the production code of a module (this is only necessary when ordering a Snuff-back Module Renew Kit), look at the side of the module, near its bottom. For example, a module coded “C1045” requires PN 107285 Renew Kit.

Spray or Bead Nozzle Cleaning Kits
Three nozzle cleaning kits are available, sized to be orifice-specific:

PN 101877	Nozzle Cleaning Kit .010 to .017 orifice
PN 101878	Nozzle Cleaning Kit .018 to .027 orifice
PN 101879	Nozzle Cleaning Kit .028 to .040 orifice

High-Temp Splice Kit PN102645
This kit consists of a foot of shrink tube and nine connectors (splices). These parts plus a sensor (order the sensor separately from the chart in this chapter) will enable you to replace the sensor in one applicator.

Extension Cable Assemblies
The following extension cable assemblies are available. These cables connect one applicator zone to the ASU. One cable assembly per applicator is usually required for the preheater; others may be used as necessary for the installation.

Control Scheme	Part No.	Length	Part No.	Length
DCL/ PLC	103773 103774 103775	10’ 15’ 20’	103776 105123 105147	25’ 30’ 40’
MCV	084F222 084F225 084F223	10’ 15’ 20’	084F682 084F383	25’ 30’
Upgrade (Ni RTD)	102706 106349	10’ 25’	105834	40’
Upgrade (J-type TC)	107044 107045 107046	2m 4m 6m	107047 107309	8m 10m

Optional Joining Kit PN 804375

In order to connect two or more Equity UFD applicator segments together into one longer applicator, a Joining Kit is necessary. See the kit's exploded-view diagram in Chapter 6 for a complete bill of materials. When ordering a Joining Kit, you must specifiy the length of the all-thread rod needed to span the segments you are joining.

Optional UFD Nozzle Cleaning Oven **(PN 107307 = 200-240v Oven/ PN 107306 = 120v Oven)**

The use of the UFD Nozzle Cleaning Oven eliminates the need to disassemble the UFD nozzles for cleaning. Nozzles are baked in the oven for approximately six hours at 750-800 degrees F. Complete cleaning instructions are provided.

Optional Quick Change Modules & Kits

Designed for high-speed module replacement, QC modules replace standard UFD modules. Quick change modules are available for all UFD applications except for gear-driven or high-flow applicators.

PN 111172: Quick Change Module, UFD T+SB, Horizontal (without guide pins)
PN 111174: Quick Change Module, UFD T+SB, Horizontal (with guide pins)
PN 111173: Quick Change Module, UFD T+SB, Vertical (without guide pins)
PN 111175: Quick Change Module, UFD T+SB, Vertical (with guide pins)
PN 108173: Quick Change Module, UFD, Horizontal (without guide pins)
PN 108834: Quick Change Module, UFD, Horizontal (with guide pins)
PN 108174: Quick Change Module, UFD, Vertical (without guide pins)
PN 108833: Quick Change Module, UFD, Vertical (with guide pins)

PN 108198: UFD Module Quick Change Kit (with guide pins)

This kit contains two guide pins, a dowel pin, a clamp plate and the screws to convert a standard module into a quick change module.

PN 108861: UFD Module Quick Change Kit (without guide pins)

This kit contains all of the contents of the PN 108198 Kit, except for the guide pins.

Recommended Spare Parts List

Part Number	Description	Qty. per Segment
084B1378	Spray or Bead Module Rebuild Kit	as required
106516	Hi-Temp Spray Module Rebuild Kit	as required
105150	UFD Module Rebuild Kit	as required
803012	UFD Hi-Temp Module Rebuild Kit	as required
107285 *or*	UFD Snuffback Module Renew Kit (A, B, C)	as required
110428	UFD Snuffback Module Renew Kit (D)	as required
See Ordering Guide	Heaters	as required
See Ordering Guide	RTD Sensor	1
See Ordering Guide	Filter Basket	4
N03812	O-ring #125	2
N01010	O-ring #021	1
N00175	O-ring #008	2 per module
N00178	O-ring #011	1 per module
069X097	O-ring #016, Hi Temp	1 per module
102645	High-Temp Splice Kit	1
001V061	Thermal Paste	1

Recommended quantities of spare parts vary depending on each individual applicator. Refer to your applicator's bills of materials (BOMs) to determine quantities of heaters, sensors, o-rings, filter baskets and kits.

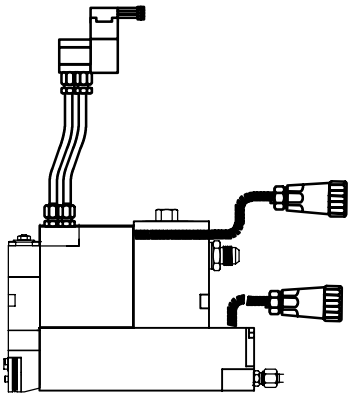
As a general rule, we recommend that you keep on hand:
Heaters: half as many of each heater as listed on the BOM,
Sensors: half as many of each sensor as listed on the BOM,
Kits: half as many as the number of modules on the BOM,
O-rings: the same quantity as listed on the BOM,
Filter Baskets: twice as many as listed on the BOM.

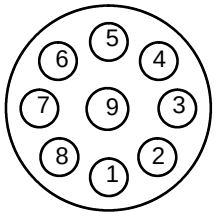
Chapter 8
ENGINEERING DRAWINGS & SCHEMATICS

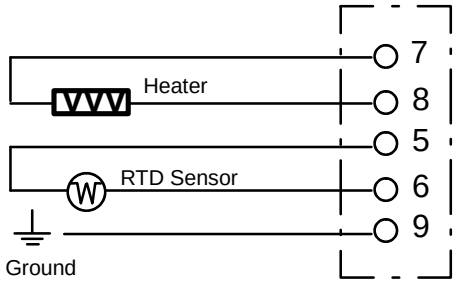
Pin Connectors & Electrical Schematics

Note: Pin connectors are viewed from the exposed end. Pins not shown on schematics are not used.

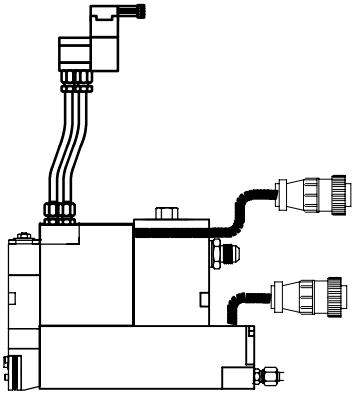
DynaControl/Dynamini or PLC Control Scheme PN 103117

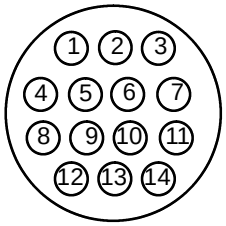


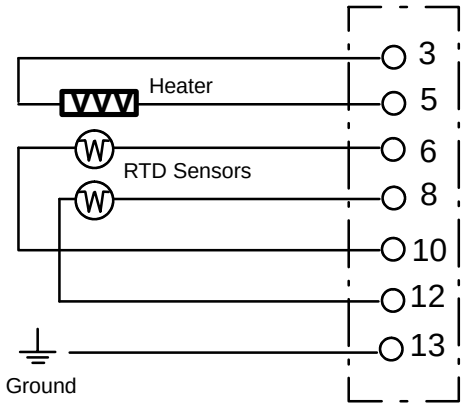




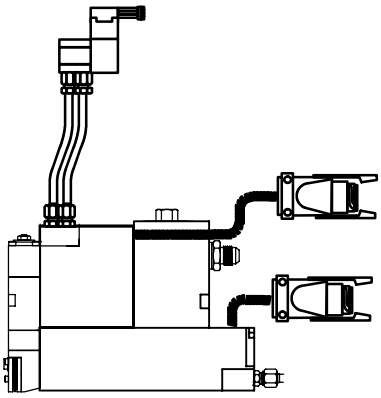
Microprocessor Temperature Control or CompuVision (MCV) Control Scheme PN 045X144

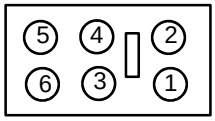




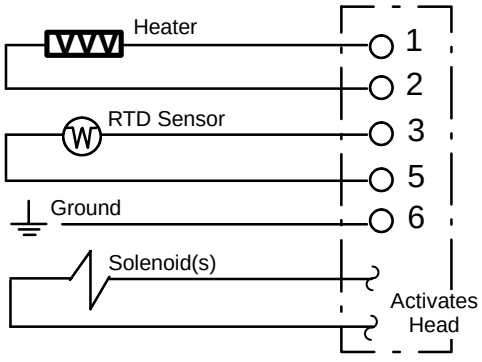


Upgrade (Nickel RTD) Control Scheme PN 804719

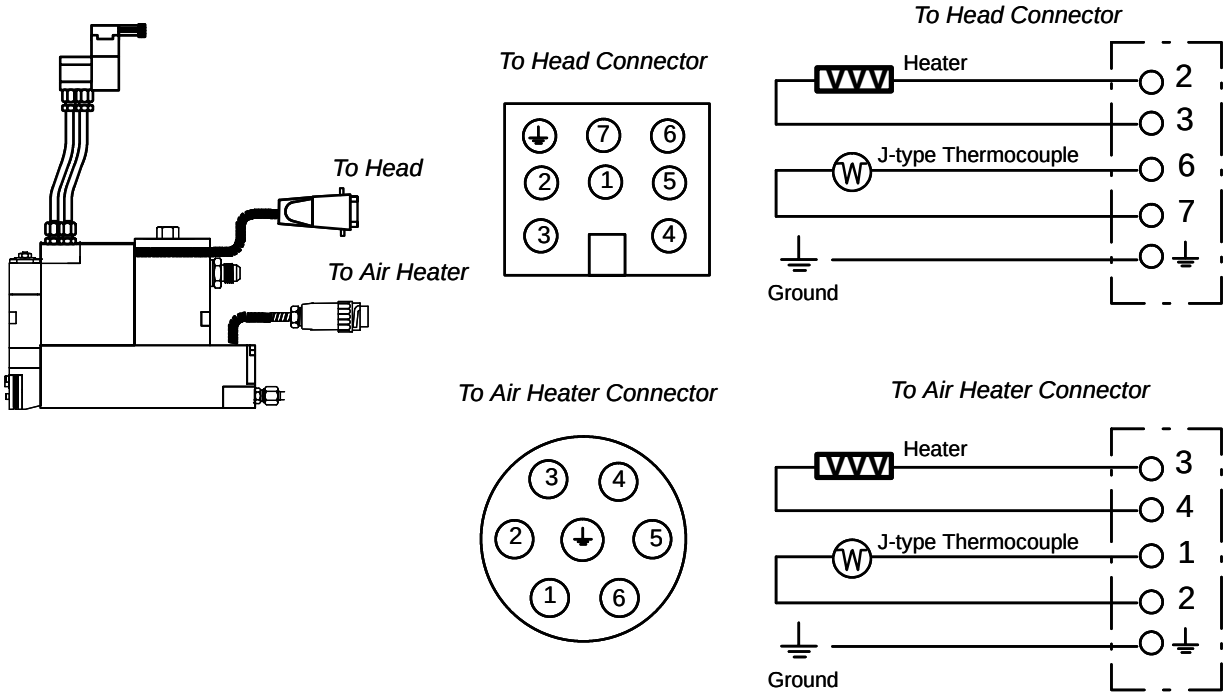




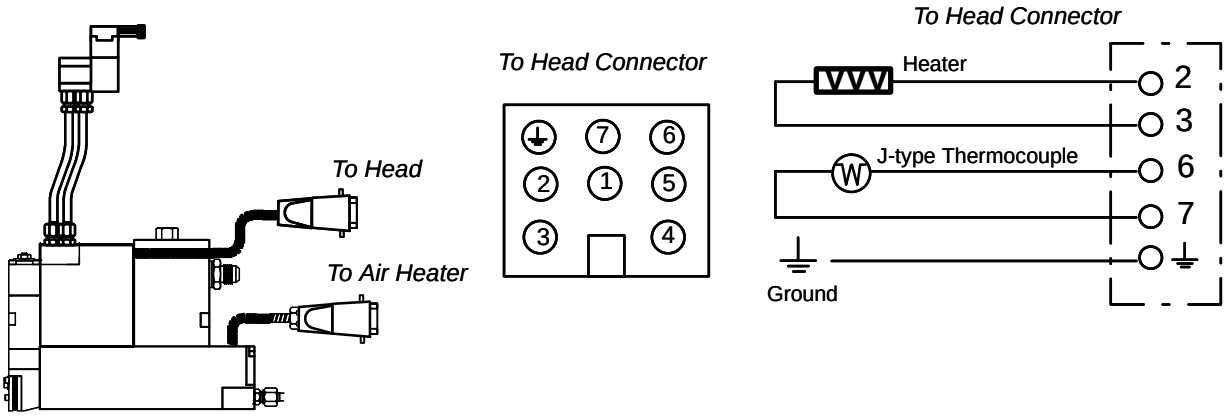
Note: pin out numbers are not labeled on the Upgrade connector.



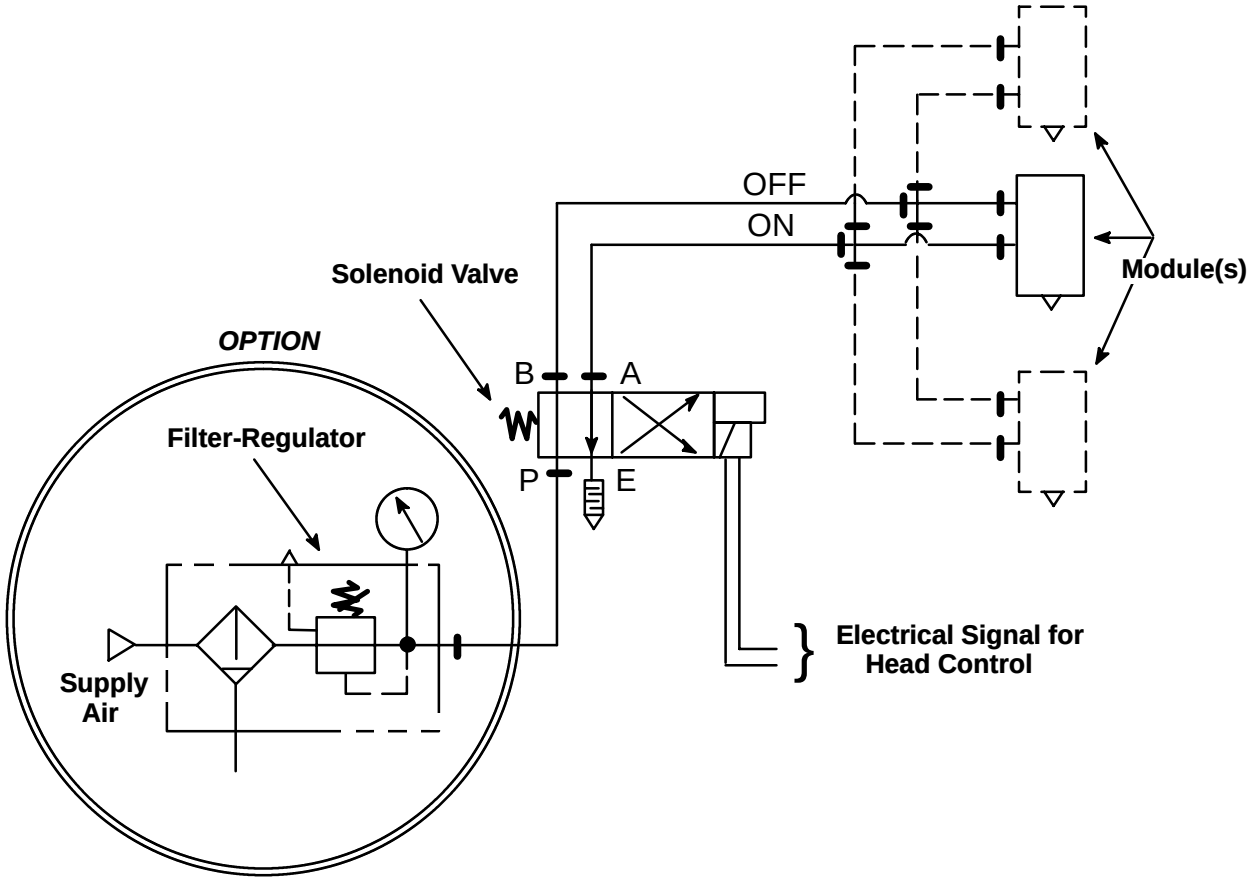
Upgrade (J-type Thermocouple) Control Scheme



Upgrade Meltex (J-type Thermocouple) Control Scheme *808792*



Pneumatic Schematic (does not apply to Snuffback Modules)



Appendix A
SOLENOID VALVE CONFIGURATIONS, SCHEMATICS & SETUP FOR CONVENTIONAL MODULES

This Appendix covers the pneumatic setup of the solenoid valves used to actuate the adhesive modules. A coalescing filter/ regulator kit (PN 100055) is available to provide regulated, oil-free air to the solenoid valves. The kit also contains the necessary fittings and tubing to configure the kit for each particular solenoid valve.

Some typical solenoid valve setups are shown on the following pages. While the most commonly used solenoid valves are shown, other valves not listed here may be used if required for the particular application. In general, however, the setups shown here can be applied to any solenoid valve. If there are questions about a valve that was supplied with the applicator, and it is not shown here, consult ITW Dynatec.

Appendix A is divided into sections for easy reference:

Section 1 – PN 100054 24 VDC solenoid valve

Section 2 – PN 106937 24 VDC solenoid valve

Section 3 – Component Illustration: 100055 Air Control Kit

Filter/ Regulator Installation Notes

1. Compressed air for applicator head operation should be clean, dry and oil free.

2. In general, operation of more than one applicator head from a single air control kit is not recommended, because applicator response time may be increased and synchronization may be more difficult.

3. Install the filter/ regulator so that the bowl drains are easily accessible for servicing and the regulator knob is accessible for adjustments.

4. Use a minimum of 1/4” OD tubing to make connections.

5. If air tubing is routed close to the head due to space constraints, high temperature TFE tubing should be used to avoid tubing damage.

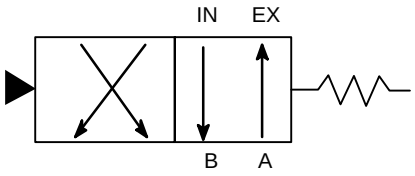
Appendix A
Section 1 CONVENTIONAL MODULES
PN 100054 (24 VDC)

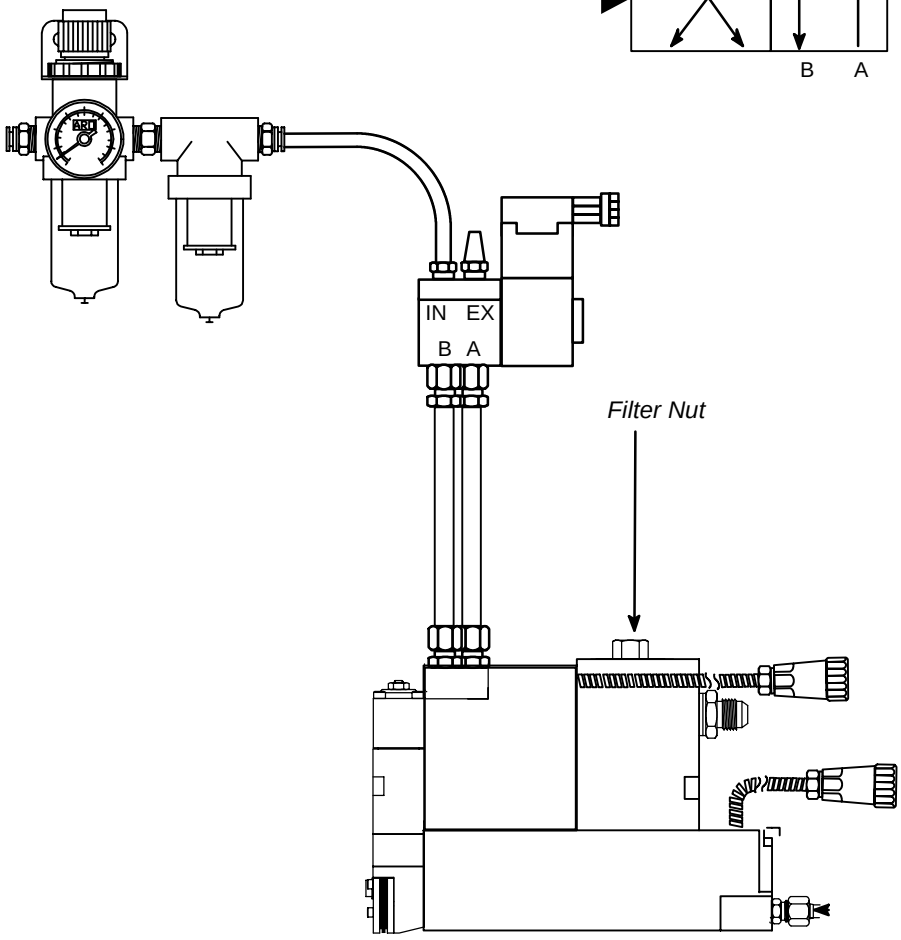
Description
Direct acting poppet valve, 4-way, 1/8 NPT ports, with non-locking recessed manual operator.

Connections
IN – Inlet A – Open side of module
EX – Exhaust B – Close side of module

Typical Setup
Apply full air pressure (80-90 psi) to IN port of solenoid valve. Use air control kit PN 100055, configured as shown below.

Schematic





Appendix A
Section 2 SNUFFBACK MODULES
PN 106937 (24 VDC)

Description

Piloted spool valve (internally piloted from Port 5), dual pressure spool, 1/8 NPT ports, with non-locking recessed manual operator.

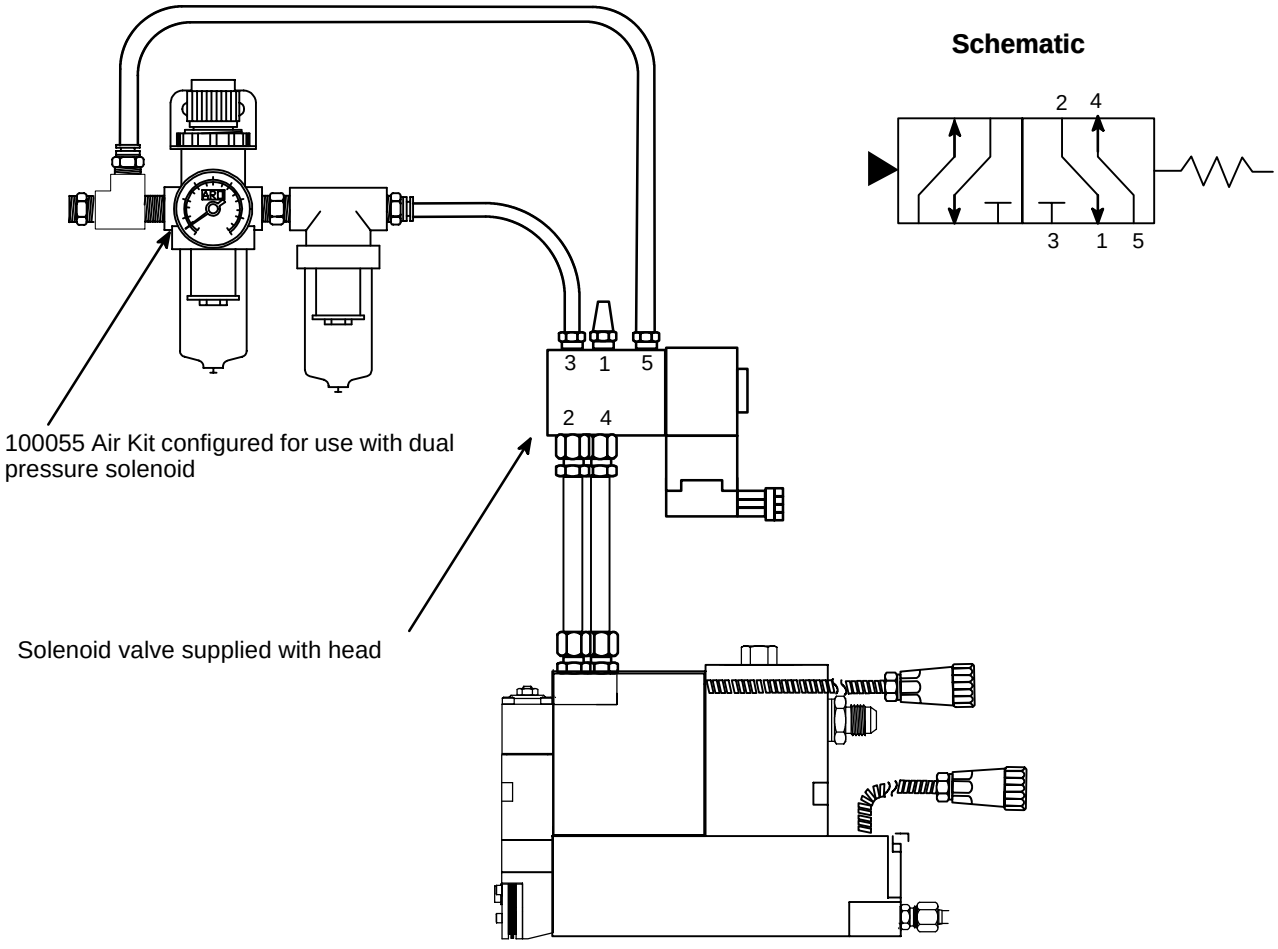
Connections

Port 1 – Exhaust
Port 2 – Open side of module
Port 3 – Inlet (open air)
Port 4 – Close side of module
Port 5 – Inlet (close air)

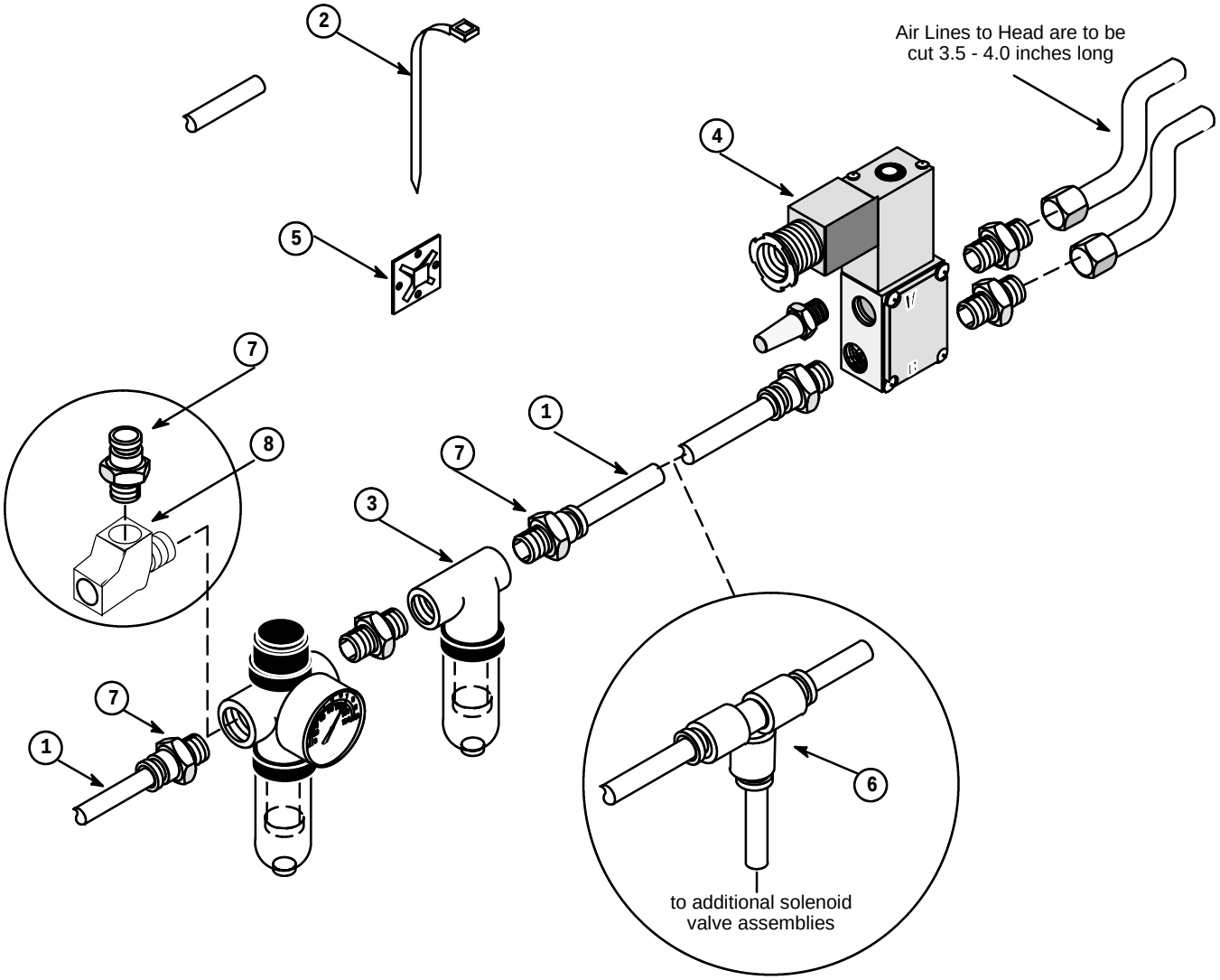
Typical Setup

Apply full air pressure (80-90 psi) to Port 5. Apply reduced air pressure to Port 3, using the air control kit PN 100055, configured as shown below.

The opening characteristic of the snuffback valve may be tuned by adjusting the opening air pressure. A starting point of 40 psi is recommended. The air pressure can then be adjusted down to soften the start, or adjusted up to give a more crisp start. The final adjustment will depend on the desired speed of operation (i.e. line speed), adhesive pressure and customer preferences.



Appendix A
Section 3
COMPONENT ILLUSTRATION: PN 100055 AIR CONTROL KIT



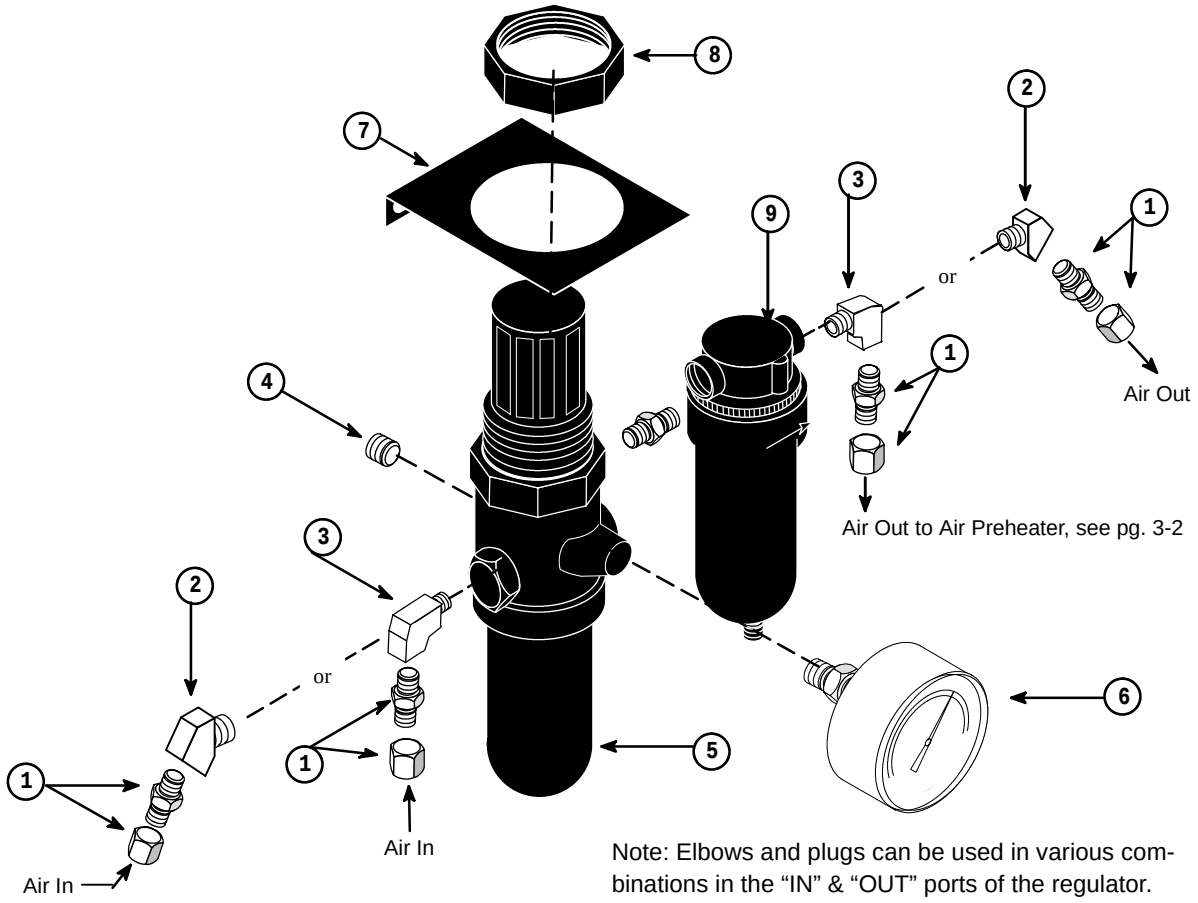
Item No.	Part Number	Description	Qty.
1	N06438	Nylon Tubing, .250 Dia.	10 ’
2	N00318	Cable Tie, .09 x 3.62 Lg	10
3	100380	Filter Assembly	1
4		Solenoid Valve Assembly	1
5	N04264	Cable Tie Anchor	3
6	N06504	Push-in Union Tee Fitting	1
7	N06430	Male Connect Fitting	3
8	N04531	1/4 Treet T, Brass	1

Appendix B
PN 107404 PROCESS (PREHEATER) AIR CONTROL FILTER/ REGULATOR

The PN 107404 Filter/ Regulator is available for precise control of the process spray air. It includes a coalescing filter/ regulator, a liquid-filled gauge, mounting bracket and necessary fittings.

Installation Notes

1. Locate the filter so that the bowl drains are easily accessible for servicing and the regulator knob is accessible for adjustments.
2. To ensure accurate process air control, operation of more than one applicator from a single filter/ regulator is not recommended.



Note: Elbows and plugs can be used in various combinations in the “IN” & “OUT” ports of the regulator.

Item No.	Part Number	Description	Qty.
1	N00092	Fitting, Connector	4
2	072X002	1/4 NPT x 45° Street Elbow	2
3	072X040	1/4 NPT 90° Street Elbow	4
4	072X053	1/4 Level Seal Plug	4
5	100991	Filter regulator	1
6	100992	Gauge	1
7	100994	Mounting Bracket	1
8	100995	Mounting Bracket Nut	1
9	107403	Coalescing Filter	1

COMPONENT ILLUSTRATION: PN 107404 Filter Regulator Assembly

Appendix C
RESISTANCE/ VOLTAGE TABLES

RTD Resistance - Temperature Tables

Pt 100 Ohms
DynaControl, PLC or MCV Control

Temperature °F	Temperature °C	Resistance in Ohms
32	0	100.00
50	10	103.90
68	20	107.79
86	30	111.67
104	40	115.54
122	50	119.40
140	60	123.24
158	70	127.07
176	80	130.89
194	90	134.70
212	100	138.50
230	110	142.29
248	120	146.06
268	130	149.82
284	140	153.58
302	150	157.32
320	160	161.04
338	170	164.76
356	180	168.46
374	190	172.16
392	200	175.84
410	210	179.51
428	220	183.17

Ni 120 Ohms
Upgrade Control

Temperature °F	Temperature °C	Resistance in Ohms
32	0	120.00
50	10	127.17
68	20	134.52
86	30	142.06
104	40	149.80
122	50	157.75
140	60	165.90
158	70	174.27
176	80	182.85
194	90	191.64
212	100	200.64
230	110	209.85
248	120	219.29
268	130	228.95
284	140	238.84
302	150	248.95
320	160	259.30
338	170	269.89
356	180	280.77
374	190	291.95
392	200	303.46
410	210	315.31
428	220	327.54

TC Voltage - Temperature Table

J-type TC
Thermocouple Control

Temperature °F	Temperature °C	Voltage in mV
32	0	0.00
50	10	0.51
68	20	1.02
86	30	1.54
104	40	2.06
122	50	2.59
140	60	3.12
158	70	3.65
176	80	4.19
194	90	4.76
212	100	5.27
230	110	5.81
248	120	6.36
268	130	6.91
284	140	7.46
302	150	8.01
320	160	8.56
338	170	9.12
356	180	9.67
374	190	10.22
392	200	10.78
410	210	11.33
428	220	11.89

Appendix D
OPTIONAL UFD NOZZLE-CLEANING OVEN MANUAL

PN 107307: 200-240v Oven/ PN 107306: 120V Oven

The use of the UFD Nozzle Cleaning Oven eliminates the need to disassemble the UFD nozzles for cleaning. Nozzles are baked in the oven for approximately four to eight hours at 750-800 degrees F (400-425C), depending on adhesive.

Oven users should read and understand the oven manufacturer's Owner's & Operator's Manual, supplied with the oven. This ITW Dynatec manual is intended to be a quick reference only for use with ITW Dynatec's UFD nozzles.

Oven Safety Precautions

General Precautions

1. Never operate the oven in close proximity to combustible materials or place combustible materials on top of the oven.

2. Do not use solvents or liquid cleaners on the control panel as they will enter the panel and damage it.

3. Place nozzle-cleaning oven in a well ventilated area.

Setup Safety

1. Connect to a properly grounded outlet only in order to provide continued protection against the risk of electrical shock.

2. a. The model PN 107306 (120v) oven must be electrically grounded to a three-wire electrical outlet or receptacle. The electrical service provided must be a dedicated line of the proper size according to local electrical codes (1500 watts).

b. The model PN 107307 (200-240v) oven must be electrically grounded to a four-wire electrical outlet or receptacle. The electrical service provided must be a dedicated line of the proper size according to local electrical codes (1300 watts).

3. The oven is not equipped with over-current protection on the AC primary. In the event that an over-current condition occurs, your facility's branch circuit over-current protection (fuse or circuit breaker) will be the primary means of protection.

Operator Safety

1. Always wear safety glasses and protective gloves and clothing when operating, loading and unloading the oven.

2. Always verify that the power switch light is OFF before attempting to load or reach into the oven chamber with any tools or instruments.

3. Do not attempt to operate the oven's controls with tongs or other tools which will damage the switches.

cont.

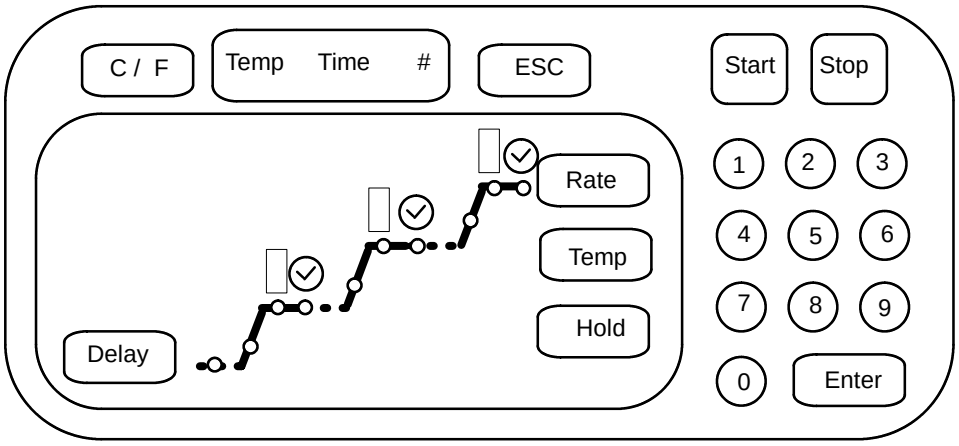
Oven Safety Precautions, cont.

4. Do not place firing trays or other hot objects directly in front of the oven; they will melt the graphic display.

Service Safety

1. Disconnect the line cord before attempting to service the oven.

2. Do not attempt to service the oven until you read and understand the manufacturer's Owner's & Operator"s Manual. Maintenance issues are beyond the scope of this ITW Dynatec manual.



Oven Control Panel & Display

UFD Nozzle Cleaning Procedure

1. Remove the UFD nozzles from their adhesive manifold(s). Wipe excess adhesive from nozzles. DO NOT disassemble the nozzles prior to the cleaning process.

2. Place the UFD nozzles on a metal or ceramic tray capable of withstanding 800 degrees Fahrenheit (425 degrees C).

3. If not already connected, connect the oven to an appropriate electrical source (120 or 240vac).

4. Place tray with nozzles within the oven and close the door completely.

WARNING

Do not load or unload the oven while the power supply is ON.

5. Turn ON the green Power Switch (seen above on right side of control panel). After a short delay for internal testing, the oven will display the approximate room temperature, program time (hours:

minutes) and program number. All red LEDs on the display will be OFF (if any LEDs are ON, then the oven was in the process of running a program when it was last shut down).

6. a. *Manual operation of oven:*
Select Program "0" (zero) by pressing the 0 (zero) numeric key. The 0 Program is a single-temperature-hold program. The oven will heat to the specified temperature and hold that temperature until the oven is turned off.

The display will read, for example, > TO 100°F → _____ . Use the numeric keys to input the desired temperature (750-800F), then press Enter. The new temperature is stored in memory after three seconds. The display will now read XX°F*****0. (***** indicates that the program has not started.) Note: "XX" represents the current ambient temperature inside the oven.

b. *Automatic operation of oven:* consult the manufacturer's manual for instructions.

7. Press the Start key to cause the oven to heat. The oven will heat at full power until it reaches the programmed temperature. The display will read > XX°F *hold* 0. The T1 LED will be ON.

8. After heat cycle, allow oven to cool to room temperature. Monitor display.

9. Remove the nozzles and tray from the oven. With clean, dry air, blow back through the nozzle openings at 40 to 60 pounds per square inch.

10. Wipe the outside surfaces of each nozzle with a clean, lint-free rag. Avoid wiping the nozzle tips.

CAUTION: Never use a wire brush or hard object when cleaning the nozzle tips or damage will result. Damage to nozzle tips will reduce the nozzle's ability to achieve an acceptable spray pattern.

11. Check torque on the four assembly screws (recommended torque is 12-15 in/lb.).

12. Purge nozzles with a liquid media, preferably the adhesive being used in their application. Alternatively, mineral oil, silicone oil, water or another liquid which has proven to be non-corrosive and is compatible with the material being processed by the nozzles may be used.

13. Examine the ejection pattern of the purging liquid from the nozzles for inconsistencies. Any irregularities may indicate damage to the nozzle tips or plugging within the tips.

Note: a sketch of the ejection pattern placed in the nozzle testing area will make identification of correct ejection patterns easier.

14. Place the cleaned nozzles in a clean, padded container, separated from other nozzles and hard surfaces that can damage nozzle tips.

15. Clean any residue from the inside of the oven and close its door to prevent environmental contamination.